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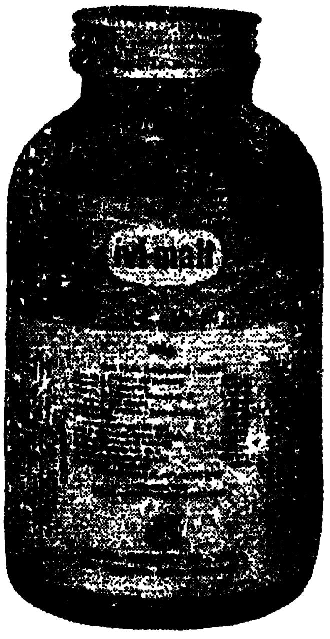

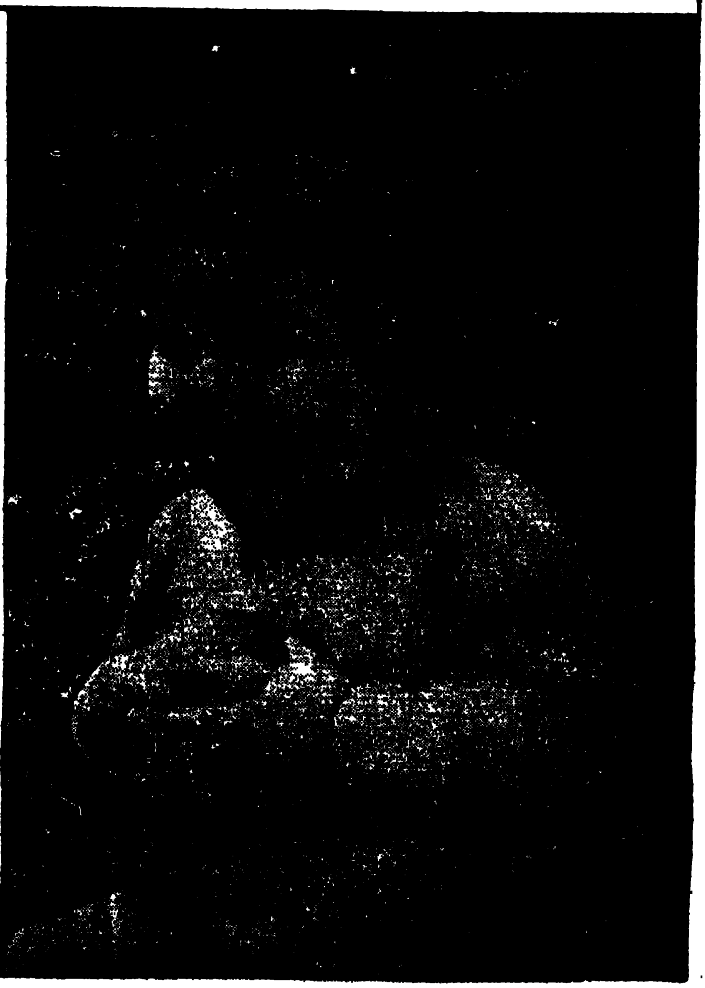

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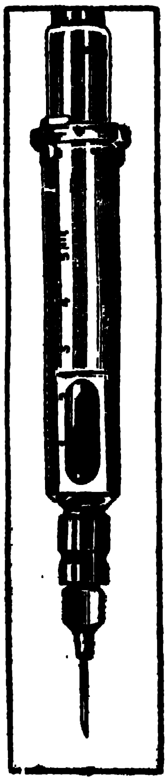

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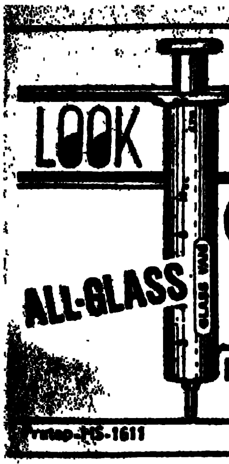

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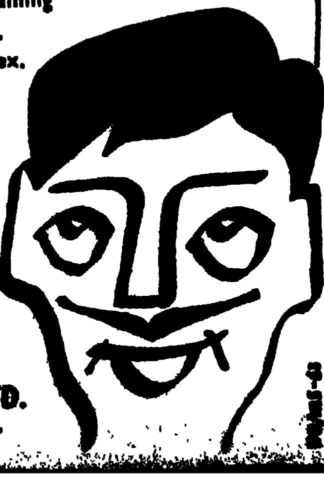

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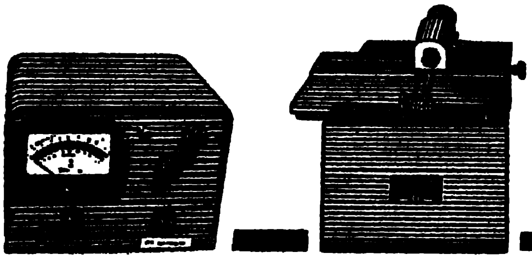

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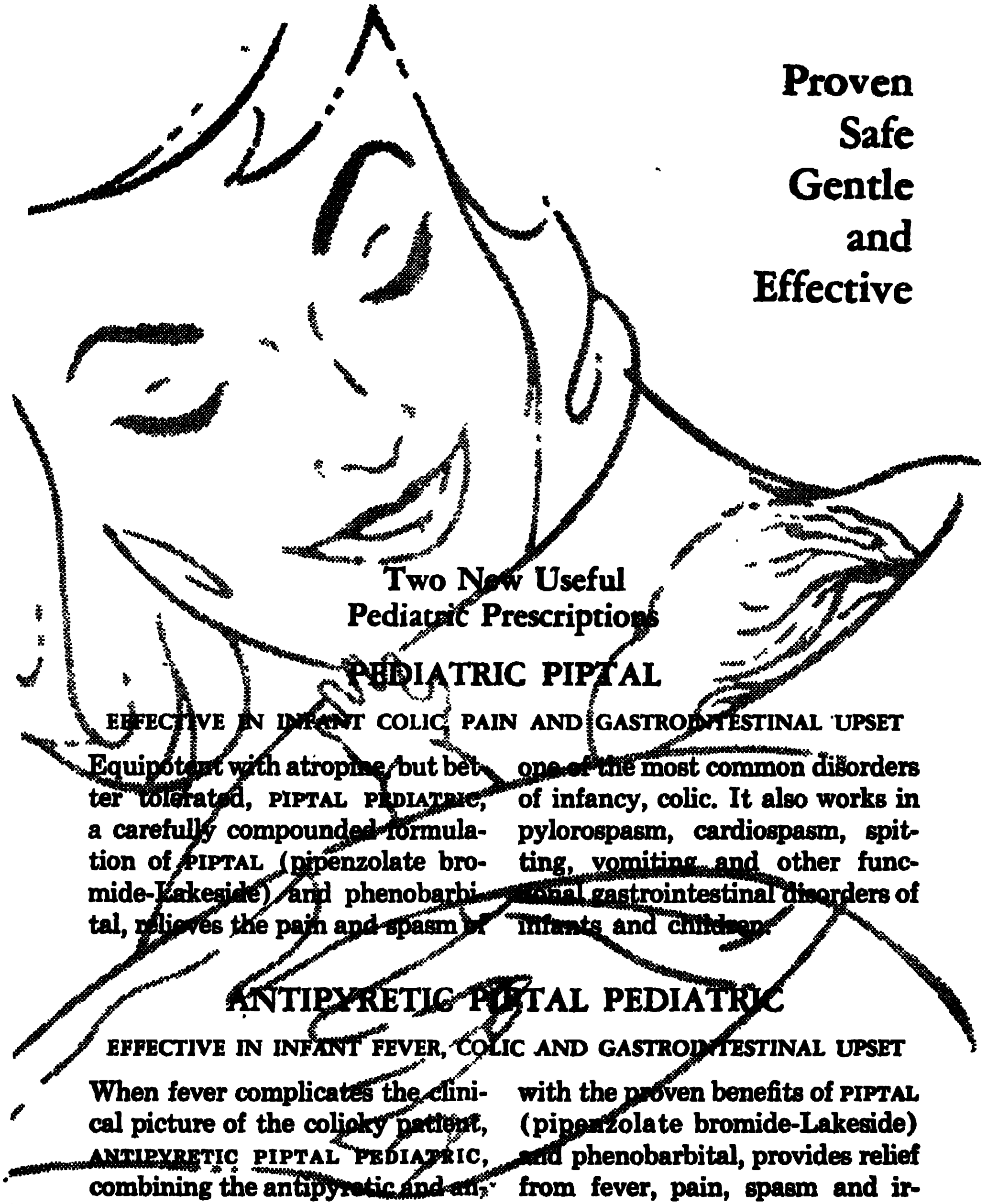

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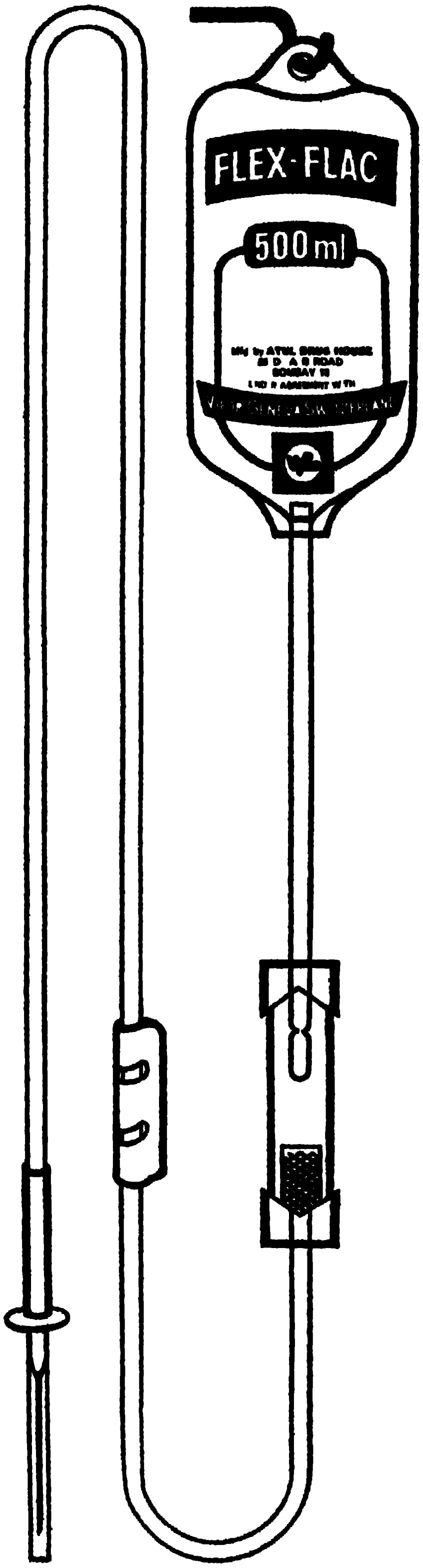

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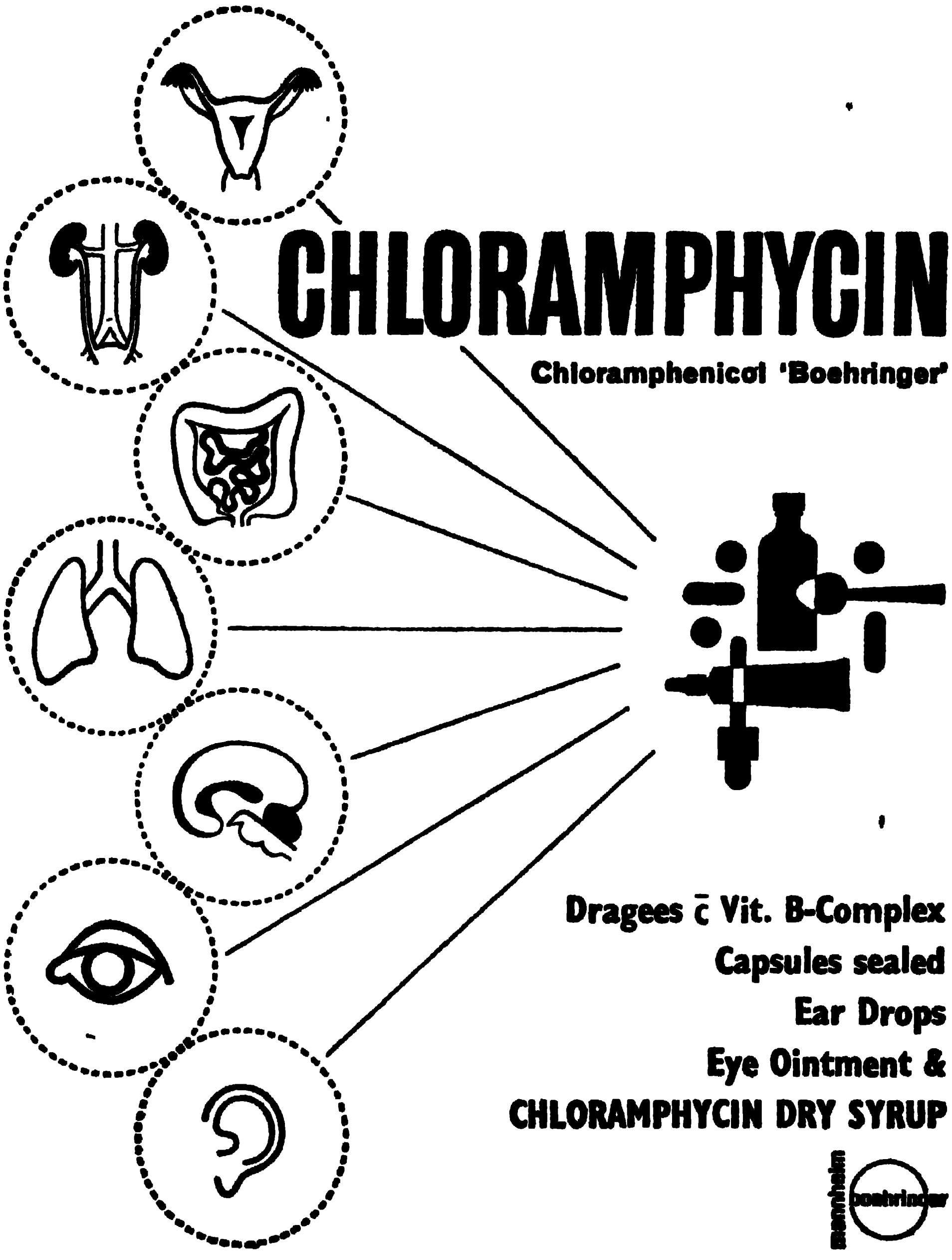

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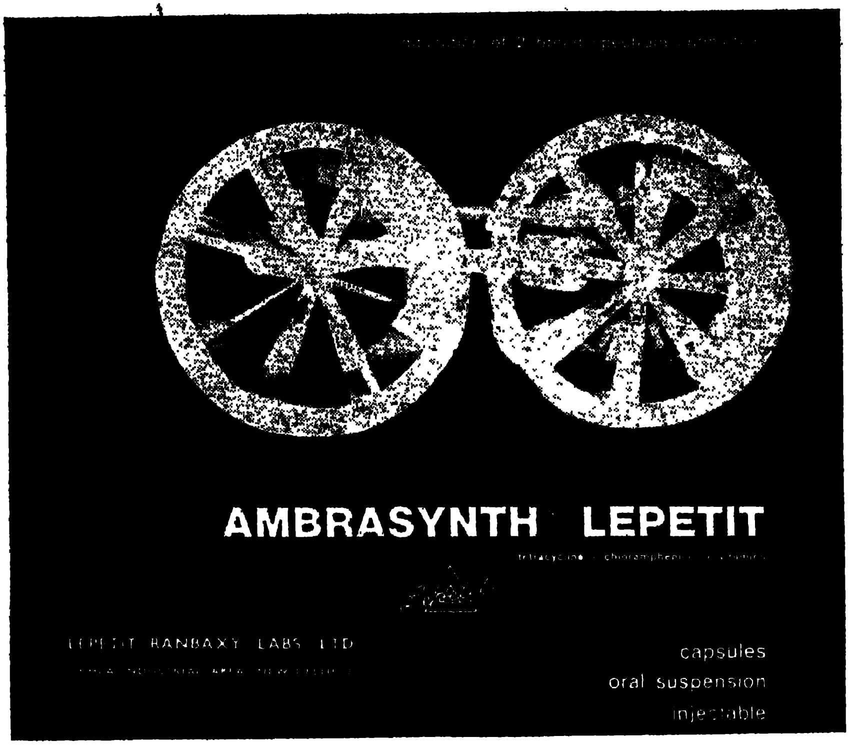

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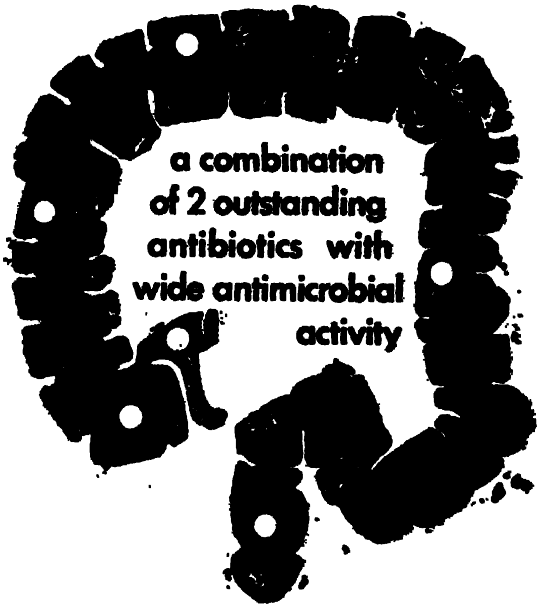

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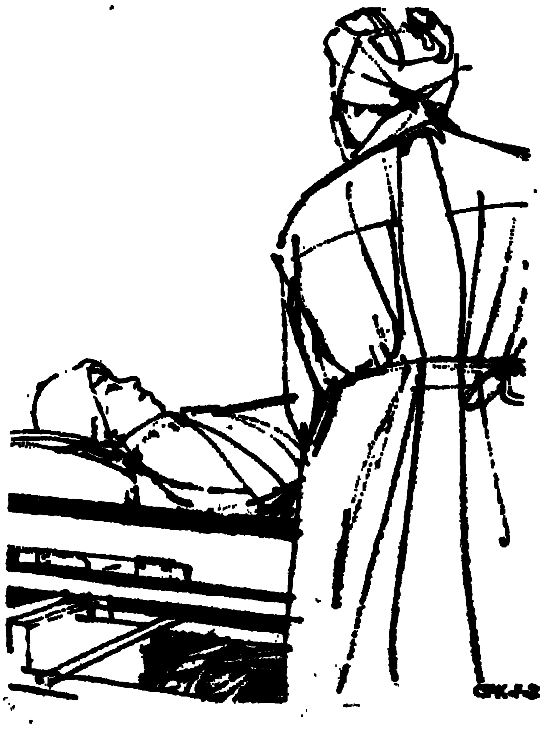

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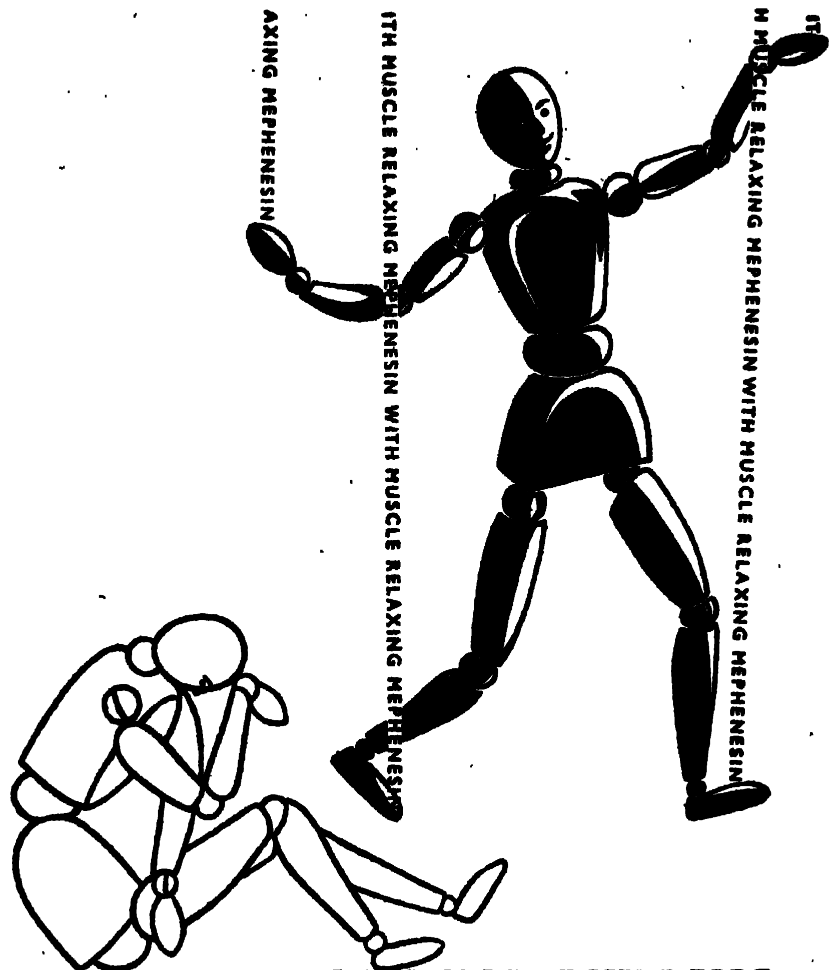
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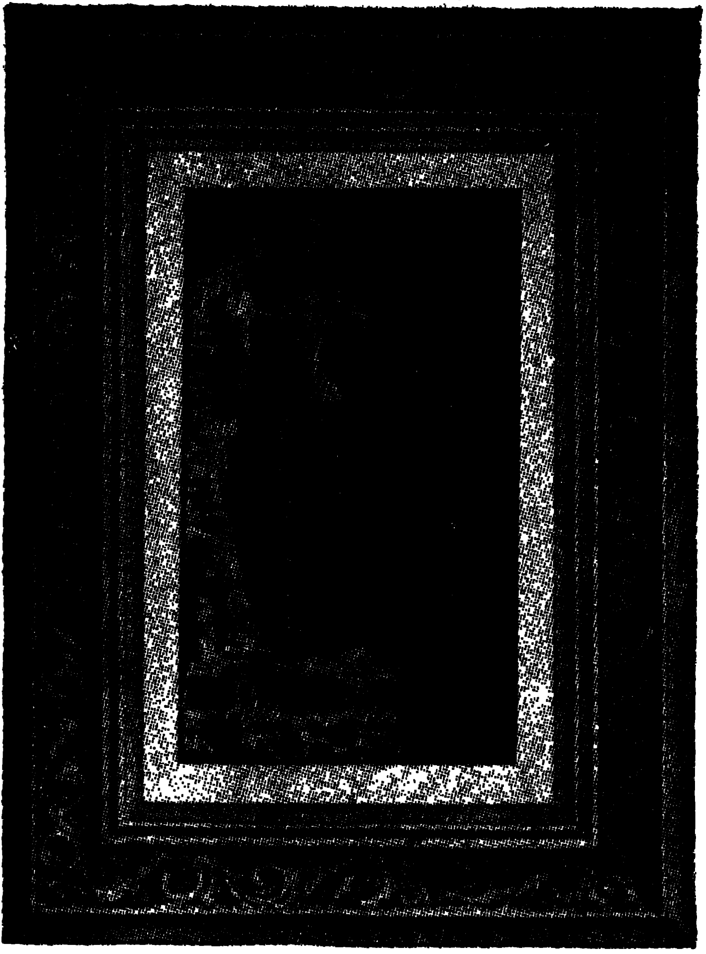

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AUGUST 1, 1966
CALCUTTA

ORIGINAL ARTICLES

CHANGES IN THE LIVER IN CHRONIC RELAPSING PANCREATITIS*

M. SUNDARA RAJAN, M.B.B.S., *Senior Postgraduate Student in Medicine*
M. D. ANANTHACHARI, M.B.B.S., M.D., *Director of Postgraduate Studies in Medicine*
AND
P. RAMACHANDRAN, M.B.B.S., M.D. (PATH.), *Assistant Professor of Pathology*
Medical College, Trivandrum

INTRODUCTION

Incidence of chronic relapsing pancreatitis (CRP) is very high as noted from the records of the Medical College Hospital, Trivandrum, compared to reports of incidence in the rest of the world. Thus, during the 3-year period from 1962-1964 out of a total of 28,191 medical in-patients, there were 2,603 diabetics including 159 patients with pancreatic calculi and diabetes mellitus. This constitutes an incidence of CRP of 0·6 per cent of medical in-patients and 6 per cent of diabetics, in this hospital.

Reports in literature of details regarding this disease from various parts of the world are not in agreement in many respects with what is found in Kerala (Comfort *et al.*, cited by Sanes *et al.*, 1950 ; Maimon *et al.*, 1948 ; Sanes *et al.*, *loc. cit.* ; Edmundson *et al.*, 1950 ; Philips, 1954 ; Olmos *et al.*, 1958). Considerable differences aetiologic, clinical and pathologic have provoked intensive study of this disease here. Table 1 compares the various aspects of cases of CRP seen here with others reported in literature. It may be seen from the table that the cases of chronic pancreatic disease with diabetes described by Zudeima (1959) in Indonesia and Shaper (1960) in Uganda are the nearest in clinical picture to the patients seen here. Diabetes of a severe degree and requiring high doses of insulin with a definite tendency to ketosis is a feature noticed in these cases. Some of these patients show insulin resistance as well. Most of the patients are young and with advanced pancreatic disease as manifested by pancreatic calculi.

In an attempt to gather insulin sensitive young diabetics for a study, it turned out that the majority of them were cases of CRP and a palpable liver was found to be a frequent finding in them. A study, therefore, was undertaken, primarily to assess the degree and nature of the liver affection in these cases. Another organ, that has perhaps equal association with CRP, it was found, is the parotid gland. Observations made on the histological changes and function tests on the liver of patients afflicted with CRP form the subject matter of this communication as a preliminary report.

MATERIAL AND METHOD

Twenty-four cases of CRP were selected for this study from the patients attending the Medical College Hospital, Trivandrum. All of them had pancreatic calculi demonstrable by plain x-ray of the abdomen. They were of thin build, underweight and undernourished, and suffered from polyuria, polydipsia and polyphagia and their age varied from 14 to 39. Diabetes was fairly severe in nearly all of them with fasting blood sugar values above 200 mg. per cent. All were from low socio-economic level with poorly controlled diabetes. The duration of the diabetes varied from 1 to 6 years.

---

* Paper partly based on the thesis of one of the authors (M.S.R.) for the M. D. (Medicine) examination of the Kerala University

TABLE 1—SHOWING CLINICAL FEATURES OF THE PRESENT SERIES COMPARED WITH THOSE OF OTHERS

	Edmundson *et al.* (1950) Maimon *et al.* (1948) Philips (1954) Sanes *et al.* (1950)	Shaper (1960)	Zudeima (1959)	Present series
Age-group ...	All ages	Young adults	Young adults	Young adults
History of alcoholism	Present	None, chronic alcoholic	Negative	Negative
Clinically detectable and severe diabetes	Less important feature; present in only a small percentage	Important feature; present in 12 out of 20 cases	Predominant feature and presenting complaint in nearly all the patients	Predominant feature and presenting complaint in nearly all the patients
Clinically manifest steatorrhoea	Important feature	Present	Less important feature	Less important feature
Malnutrition ...	—	Present	Present	Present
Insulin requirements	Low	—	High	High
Pancreatic pain ...	Present	Present in 13 out of 20 cases	No pain	Present in all
Ketosis ...	—	Present in 4 cases	Never	Present in 8 out of 24 cases

TABLE 2—SHOWING RESULTS OF LIVER FUNCTION TESTS

Case No.	Sex	Age (years)	Total proteins (g.%)	Albumin (g.%)	Globulin (g.%)	A./G. ratio	Thymol turbidity (unit)	van den Bergh reaction	Serum bilirubin (mg.%)	Alkaline phosphatase (KA unit)	Serum cholesterol (mg.%)	Serum amylase (mg.%)
1	F	17	6·8	3·4	3·4	1	9	−ve	0·8	17·6	186	100
2	M	19	7	5	2·5	1·8	4	−ve	0·3	16·2	175	115
3	M	36	7	3·7	3·3	1·1	6	−ve	0·7	11·6	...	...
4	M	39	5·9	3·6	2·3	1·5	3	−ve	0·3	11·6	210	...
5	M	21	6·5	3·8	2·7	1·4	4	−ve	0·6	9·8	183	...
6	M	21	7·1	4·8	2·3	2·1	3	−ve	0·6	12	236	160
7	F	25	6·9	3·7	3·2	1·2	3	−ve	0·5	7·8	242	140
8	F	21	6·7	3·4	3·3	1	10	−ve	0·6	11·3	232	...
9	F	30	7	3·6	3·4	1·1	5	−ve	0·4	5·6	183	...
10	F	22	6·9	3·6	3·3	1·1	3	−ve	0·5	7·5	207	60
11	F	15	7·3	4·8	2·5	1·9	4	−ve	0·6	9·2	209	94
12	F	20	6·1	4·3	1·8	2·4	2	−ve	0·8	11·3	509	117
13	M	22	6·8	4·2	2·6	1·6	4	−ve	0·6	11·3	183	200
14	F	19	7·6	4·3	3·3	1·3	4	−ve	0·8	13·1	187	42
15	M	19	5·8	2·7	3·1	0·9	4	−ve	0·3	8·3	278	186
16	M	19	6·9	3·9	3	1·3	6	−ve	0·7	10·7	225	110
17	F	14	6	2·8	3·2	0·9	5	−ve	0·9	14·4	262	70
18	F	25	7·2	4·8	2·4	2	2	−ve	0·2	8·6	190	92
19	F	32	5·9	3·5	2·4	1·4	4	−ve	0·4	11·3	240	140
20	M	30	6·8	4·9	2·9	1·7	4	−ve	1·1	11·6	260	70
21	M	20	6	3·6	2·4	1·5	5	−ve	0·6	11·1	235	134
22	F	21	8	5·5	2·5	2·2	8	−ve	1	12·4	190	...
23	F	23	5·7	4	1·7	2·3	8	−ve	0·3	9·6	368	129
24	F	20	5·8	4·7	1·1	4·3	2	−ve	0·3	16·4	290	218

A duration of less than 2 years was considered short, and more than 4 years as long, for discussing results. No case with a previous history of hepatitis, malaria, exposure to hepatotoxic drugs, skin infection or tuberculosis was included in the present study. All had haemoglobin values above 10 g. per cent.

A detailed clinical examination was made of all the patients. The liver was palpated carefully and, when enlarged, graded as slight when the margin was less than 2 cm. below the costal margin; moderate when between 2 and 5 cm. ; and marked when more than 5 cm. After controlling the diabetes in these patients with insulin, over an average period of 2 weeks, the liver function tests and liver biopsy were performed. The tests performed were total serum proteins and serum albumin by chemical methods (burette and microKjeldahl methods), thymol turbidity, van den Bergh reaction, serum bilirubin, serum alkaline phosphatase and total serum cholesterol. The serum amylase was estimated in 18 cases. A liver biopsy with Vim-Silverman needle was carried out in all cases, the material fixed in alcohol immediately and stained with haematoxylin and eosin and PAS stain. The degree of glycogen infiltration and fatty change was classified as mild, moderate and severe, according to whether less than 25 per cent, between 25 and 50 per cent, or more than 50 per cent of 300 cells counted showed change.

RESULTS

There were 10 males and 14 females among those studied. Of these, 10 were in the second, 11 in the third and 3 in the fourth decade of life. The liver was found to be enlarged in 14 out of 24 studied. Seven had long and 4 short duration of diabetes. The enlargement of the liver was slight in 7, moderate in 5 and marked in 2 cases. It was firm, uniformly enlarged, non-tender and with a smooth edge. The spleen was not palpable in any of them ; none had ascites.

The results of the liver function tests are given in Table 2.

Out of the 24, glycogen infiltration was found in the nuclei and liver cells (Fig. 1) in 11. One of these showed cirrhosis also. The degree of glycogen infiltration by PAS staining (Fig. 2) was mild in 4, moderate in 6 and severe in 1. Nuclear and cytoplasmic glycogen infiltration was found together in most of the cases. At any rate an inverse relationship between the two was not evident. Glycogen infiltration was associated with enlarged liver in 9, out of which 4 had slight, 4 moderate and 1 marked hepatomegaly. Of these 4 had short and 6 long duration diabetes.

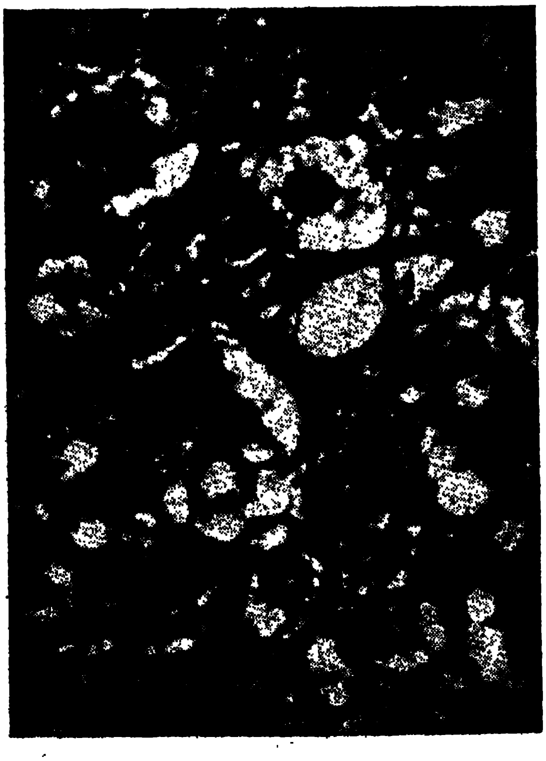

FIG. 1—SHOWING INTRANUCLEAR GLYCOGEN INFILTRATION (×475)

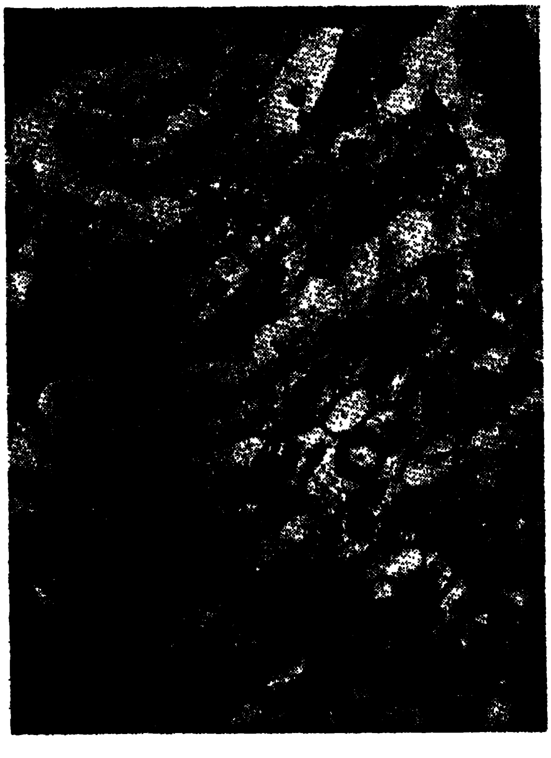

FIG. 2—SHOWING GLYCOGEN INFILTRATION (P.A.S.×475)

Fatty change was seen in only 4 cases including the 2 which showed a picture of cirrhosis. It was of a mild degree in 2 and moderate in the other two. The fatty change was diffuse and no preference to any zone of the lobule was detected. Out of the 3 cases which showed cirrhosis one had well established portal cirrhosis and in the others the appearance could be described as early, with pseudolobulation (Fig. 3). Glycogen infiltration and fatty change were found to occur independently in all the cases.

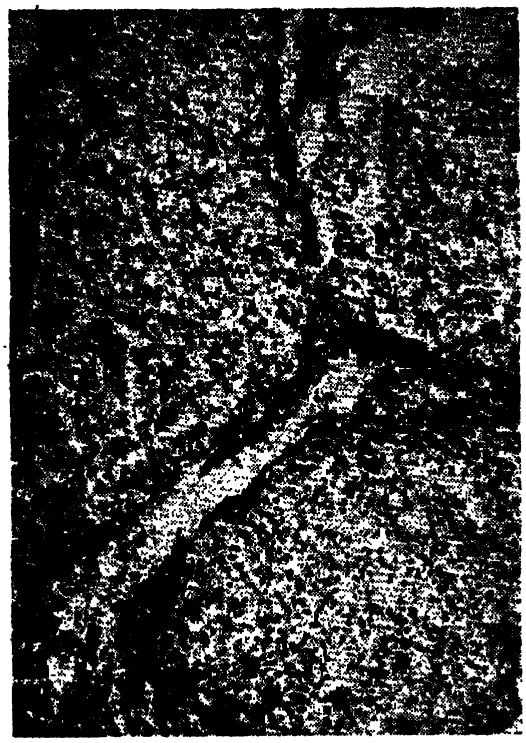

FIG. 3—SHOWING CIRRHOSIS WITH PSEUDOLOBULATION (×110)

DISCUSSION

Enlargement of the liver was present in 58 per cent of a total of 24 cases studied. Liver function tests were not altered significantly and did not run parallel with the structural changes. A summary of the abnormal liver function tests is presented in Table 3. 16 patients had total serum protein values above 6·4 g. per cent. Only 5 patients had values below 6 g. per cent and here too none had a value below 5 g. per cent. Serum albumin below 3·5 g. per cent was found in only 4 patients. Elevated globulin with altered albumin-globulin ratio was present in about half the number of cases along with increased thymol turbidity. These, however, are nonspecific changes and could be related to dietary deficiencies and chronic infections. An elevated alkaline phosphatase was found in 20 per cent of cases. This is in agreement with the figures of Sarin and Bhu (1964) in respect of juvenile onset type of diabetics, the subject matter of their study.

TABLE 3—SHOWING NUMBER AND PERCENTAGE OF CASES WITH ABNORMAL LIVER FUNCTION TESTS

Liver function tests		No. of cases	Percentage of total
Total proteins less than 6 g.%	...	5	21
Albumin less than 3·5 g.%	...	4	17
Globulin more than 3 g.%	...	9	38
A/G ratio less than 1·5	...	12	50
Thymol turbidity above 4 units	...	9	38
van den Bergh reaction positive	...	Nil	...
Serum bilirubin above 1 mg.%	...	1	4
Alkaline phosphatase above 13 KA units/100 ml.	...	5	21
Serum cholesterol above 300 mg.%		2	8

The apparent normal values of serum albumin may perhaps be due to a haemoconcentration effect, as the total circulating albumin is very much below the normal of 158 g. in these patients (Hoffman, 1954). Thus with an average weight of 39 kg., the plasma volume would be 1950 ml. and even with an albumin value of 4 g. per cent the total albumin comes to only 78 g.

Histologically, intranuclear and cytoplasmic glycogen infiltration constituted the principal change. It was present in nearly half the number of cases. This was moderate to severe in 7 cases out of 11 and in 9 of them the liver was palpable. It, therefore, seems that glycogen infiltration is the cause of liver enlargement in many of these cases. The duration of diabetes did not show any relation to hepatomegaly or glycogen infiltration. Fatty change was noted in only 16 per cent of cases and was never to a marked degree.

The predominance of glycogen infiltration together with minimal fatty change in the liver in these patients is different from the observation of the fatty change noted in other reports in this regard in cases of CRP. This seems explainable when the clinical pictures of patients here and those reported on from elsewhere are compared (Table 1). Furthermore, hepatomegaly associated with glycogen infiltration is a well recognised change in insulin sensitive young diabetics (Sherlock, 1963; Sarin and Bhu, *loc. cit.*) Hepatomegaly has been found to occur in diabetic children most often during recovery from acidosis or coma (Danowski, 1957) and glycogen infiltration is the predominant change in a series of 80 liver biopsies in diabetics (Tulloch, 1962).

Cirrhosis of the liver is observed in a comparatively high percentage of cases. As the total number of cases in this series is small, no conclusion can be drawn from this. Alcoholism and gall bladder disease are not seen in the patients here. There is the report of Geevarghese *et al.* (1962) on this point. Although no study on the exocrine functions of the pancreas has been made among these, malnutrition is present to a degree in these patients. However, the fatty change in the liver noted does not imply a nutritional origin, as it is seen minimally, in a small number of cases and without any preferential distribution towards the peripheral zone of the lobule.

CONCLUSION

There is obvious need to study chronic relapsing pancreatitis, a disease so rare elsewhere and so common here, in its many aspects. This report is a preliminary one based on 24 cases on one of its aspects, i.e. changes in the liver due to relapsing pancreatitis.

ACKNOWLEDGMENT

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STUDY OF SERUM PROTEINS AND THEIR RELATIONSHIP WITH OTHER INDICES OF LIVER FUNCTION IN TOXAEMIAS OF PREGNANCY

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Total serum proteins and albumin and globulin ratio have been taken as an index of liver function (Owen, 1958). Advent of electrophoretic techniques have not only led to more accurate estimation of albumin and globulin but also to fractionation of the latter into various components. We wondered if a correlation could be established between some of the protein fractions and serum transaminases and whether the serum protein changes along with serial estimation of serum glutamic pyruvic transaminase (S.G.P.T.) would be a better guide to hepatocellular damage than S.G.P.T. alone.

MATERIAL AND METHOD

Serum proteins were studied in 12 healthy nonpregnant women, 13 cases of normal pregnancy, 3 cases of noneclamptic convulsions in pregnancy and 47 cases of acute toxaemia of pregnancy. Cases of toxaemia were grouped under: mild (14 cases) and severe (19 cases) of preeclamptic toxaemia and 14 cases of eclampsia, according to the American Committee of Maternal Welfare.

Electrophoretic analysis was carried out in the apparatus constructed by Arthur H. Thomas and Company using barbitone buffer of pH 8·6 and 0·01 M. Good separation was obtained within 6-8 hours of the run, using 300 volt current on 30 × 4 cm. Whatman No. 1 paper strip. Dye used was bromophenol blue in alcohol saturated with mercuric chloride (Cremer and Tiselius, quoted by Wall, 1958). The strips were evaluated with spinco analytrol. The results of duplicate analysis of five normal sera showed experimental error of + 5 per cent. Total proteins, albumin and globulin were estimated by King's nesslerisation technique (King, 1956).

S.G.P.T. was estimated by the colorimetric method of Reitman and Frankel (1957) in 25 nonpregnant healthy women, 13 cases of normal pregnancy, 47 cases of acute toxaemia of pregnancy and 3 cases of noneclamptic convulsions in pregnancy.

Liver biopsy was done by the intercostal method (Sherlock, 1958) in 43 cases. Of these, 3 were done in normal nonpregnant women, 5 in normal pregnancy, 8 in mild toxaemia, 12 in severe toxaemia and 14 in eclampsia. Estimation of serum bilirubin, icterus index, van den Bergh's reaction, serum cholesterol, serum alkaline phosphatase, thymol turbidity and bile salts and pigments in the urine were carried out in all cases.

OBSERVATIONS

The values of serum proteins and albumin/globulin (A : G) ratio as obtained by salt fractionation technique and relative concentrations of the various fractions as obtained by paper electrophoresis in the different groups are shown in Table 1.

The number of cases studied in mild toxaemia, one week after delivery, is rather small because some of the patients delivered at home after treatment had refused to come for check up. Follow-up of the cases, six weeks after delivery, was a more difficult problem for the same reason.

ANTEPARTUM SERUM PROTEIN VALUES :

Normal pregnancy—Total serum proteins, albumin, γ-globulin and A : G ratio declined from the normal nonpregnant value of 6·86, 4·06, 1·14 g. per cent and 1·45 respectively to 6·14, 2·98, 1·08 g. per cent and 0·94 respectively. α_1, α_2 and β-globulins rose from a value of 0·36, 0·60 and 0·68 g. per cent to 0·4, 0·68 and 0·98 g. per cent respectively. The decrease in total proteins and albumin was statistically highly significant ($P<0.001$) relatively and absolutely. Rise in α_1, α_2 and β-globulins was also statistically significant in relative and absolute concentrations. Fall in γ-globulin was insignificant. The deviation (+ or −) of total serum

TABLE 1—SHOWING MEAN CONCENTRATIONS OF SERUM PROTEINS WITH STANDARD DEVIATION

Clinical condition	Total proteins (g.%)	Differential protein percentage						A. G. ratio	
		Albumin	Globulin					Electrophoretic method	Chemical method
			α_1	α_2	β	γ			
Nonpregnant women ...	6·86	59·18	5·20	8·69	10·01	16·58		1·45	2·50
	±0·11	± 5·55	± 1·50	± 2·37	± 1·76	± 3·52			
Ante-partum									
Normal pregnancy ...	6·14	48·56	6·49	11·06	15·94	17·65		0·94	1·95
	±0·14	± 5·76	± 1·2	± 2·78	± 4·86	± 4·43			
Mild toxaemia ...	5·94	47·13	6·81	12·18	15·46	18·15		0·89	1·82
	±0·56	± 5·59	± 1·85	± 1·82	± 3·67	± 4·49			
Severe toxaemia ...	5·34	38·73	7·98	16·36	19·78	17·04		0·63	1·86
	±0·54	±11·35	± 2·53	± 5·8	± 5·57	± 4·83			
Eclampsia ...	5·60	36·63	8·75	17·04	18·65	19·17		0·58	1·86
	±0·79	± 7·45	± 2·57	± 3·66	± 6·71	± 6·01			
Post-partum (6-9 days)									
Normal pregnancy ...	6·11	53·65	5·52	8·99	12·07	19·76		1·16	
	±0·43	± 5·00	± 0·31	± 2·50	± 3·42	± 4·14			
Mild toxaemia ...	6·25	50·87	7·00	10·15	14·11	17·97		1·03	
	±0·54	± 6·32	± 2·61	± 6·45	± 1·32	± 3·77			
Severe toxaemia ...	5·58	45·60	17·84	15·19	16·90	16·58		0·80	
	±0·31	± 9·24	± 3·01	± 4·63	± 3·45	± 4·45			
Eclampsia ...	5·47	39·61	7·14	16·28	17·90	19·78		0·70	
	±0·50	± 7·80	± 2·5	± 4·83	± 4·50	± 3·98			
Post-partum (42-98 days)									
Normal pregnancy ...	6·76	60·05	3·90	8·65	11·80	17·11		1·50	
	±0·29	± 5·9	± 1·59	± 2·01	± 1·20	± 3·20			
Mild toxaemia ...	6·75	59·37	3·94	8·86	12·73	15·08		1·47	
	±0·88	± 6·78	± 1·02	± 2·62	± 1·77	± 2·95			
Severe toxaemia ...	6·77	60·91	4·48	8·05	11·23	14·93		1·55	
	±0·25	± 8·2	± 1·28	± 1·94	± 1·94	± 3·95			
Eclampsia ...	6·76	61·38	3·96	7·83	10·13	16·78		1·65	
	±0·20	± 6·80	± 2·5	± 1·60	± 2·51	± 3·20			

TABLE 2—SHOWING THE DEVIATION (+ OR −) OF TOTAL SERUM PROTEIN AND ITS FRACTIONS IN ABSOLUTE AND RELATIVE CONCENTRATIONS, FROM THE NORMAL NON-PREGNANT VALUES (EXPRESSED AS PERCENTAGE)

Period	Total proteins	Albumin		Globulin							
				α_1		α_2		β		γ	
		Absolute deviation	Relative deviation	Absolute deviation	Relative deviation	Absolute deviation	Relative deviation	Absolute deviation	Relative deviation	Absolute deviation	Relative deviation
Ante-partum											
Normal pregnancy	−10·50	−26·60	−18·00	+11·00	+24·80	+13·60	+37·50	+44·1	+59·20	− 5·30	+ 6·40
Mild toxaemia	−13·40	−31·10	−20·60	+11·00	+31·00	+20·00	+40·00	+33·8	+54·00	− 5·30	+ 9·50
Severe toxaemia	−22·20	−49·00	−34·50	+19·40	+53·40	+45·00	+88·00	+54·4	+97·00	−20·20	+ 2·70
Eclampsia	−18·40	−49·50	−38·10	+36·10	+68·20	+58·33	+96·00	+52·9	+86·30	− 6·10	+15·00
6-9 days post-partum											
Normal pregnancy	−11·00	−19·20	− 9·40	− 8·40	+ 6·00	− 8·40	+ 3·00	+ 7·30	+20·40	+ 5·20	+19·00
Mild toxaemia	− 8·90	−21·70	−14·10	+22·20	+34·60	+ 5·10	+16·80	+29·40	+41·00	− 1·80	+16·00
Severe toxaemia	−18·70	−39·00	−25·00	+22·20	+50·70	+41·60	+74·80	+39·70	+69·70	+14·00	+ 3·00
Eclampsia	−20·30	−46·60	−33·10	+ 8·30	+37·00	+48·30	+56·00	+44·10	+78·40	− 5·30	+ 1·00
42-98 days post-partum											
Normal pregnancy	− 1·50	0·00	+ 1·00	−28·00	−25·00	− 3·40	− 0·50	+ 5·80	+18·00	− 8·8	+ 3·10
Mild toxaemia	− 1·80	− 1·30	+ 0·30	−28·00	−24·30	0·00	+ 1·90	+26·40	+27·00	−10·60	− 9·10
Severe toxaemia	− 1·30	+ 1·40	+ 2·90	−16·70	−14·00	−10·00	− 7·00	+11·70	+12·00	−11·40	+10·00
Eclampsia	− 1·50	+ 2·20	+ 3·70	−24·80	−23·60	−11·70	−10·00	0·00	+ 1·00	0·00	+ 1·00

protein and its fractions, in absolute and relative concentrations, from the normal nonpregnant values is shown in Table 2.

Mild toxaemia—No significant change was observed in any of the fractions.

Severe toxaemia—The changes in different fractions showed a progressive trend as compared to normal pregnancy and mild toxaemia. Total proteins, albumin and γ-globulin fell from 6·14, 2·98, 1·08 g. per cent in normal pregnancy to 5·34, 2·07 and 0·91 g. per cent respectively. The fall was significant in all these fractions. α_1, α_2 and β-globulins rose from 0·40, 0·68 and 0·98 g. per cent to 0·43, 0·87 and 1·05 g. per cent respectively, the rise being significant only in α_2-globulin.

Eclampsia—Total serum proteins were slightly higher in this group than in severe toxaemia (5·60 g. per cent as compared to 5·34 g. per cent). Serum albumin showed a further fall to 2·05 g. per cent. α_1, α_2, β and γ-globulins were higher than in severe toxaemia. However, none of these changes except for the rise in γ-globulins was statistically significant as compared to severe toxaemia of pregnancy. All the changes except the rise in γ-globulins were statistically significant as compared to normal pregnancy.

Electrophoretic pattern, typical of hepatic parenchymal damage, i.e., low total serum proteins, very low serum albumin, raised α_1, α_2 and β-globulins were often but not always associated with cellular necrosis in liver biopsy and *vice versa*. Sometimes nephrotic syndrome pattern was also obtained. β-globulin band was quite often sharp and slender in normal pregnancy and it was usually difficult to effect a separation between α_2 and β-globulin. γ-globulin band was also frequently diffuse. All the above characteristics were present more frequently in toxaemias of pregnancy.

POSTPARTUM SERUM PROTEIN STUDIES:

Changes in serum proteins were studied 6-8 days and 6-14 weeks after delivery. Much significance cannot be attached to the mean values in such a small study. The progressive changes however, can be followed in each individual, this being a longitudinal study. Total serum proteins and albumin were higher, α_1 and β-globulins were lower. Similar trend of events was observed in preeclampsia and eclampsia. In 6-14 weeks postpartum, all the fractions had returned to almost normal levels; α_1 and α_2-globulins being even lower than normal. β-globulins were, however, still slightly raised.

Serum transaminase estimations—Mean value of S.G.P.T. in the normal pregnant compared with nonpregnant women was lower, the fall being statistically significant. No significant change was observed in the puerperium. Rise in S.G.P.T. activity was present in only 2 out of 14 cases of mild toxaemia, 6 out of 19 cases of severe toxaemia and 11 out of 12 cases of eclampsia. The elevation in cases of eclampsia showed a typical pattern, the rise starting on the 2nd day after the onset of convulsions reaching a peak between the 5th and the 7th day and dropping back to normal by the 12th day. S.G.P.T. was normal in all the 3 cases of noneclamptic convulsions in pregnancy.

Liver biopsy study—Changes in normal pregnancy were insignificant and inconsistent. Focal necrosis was present in 3 out of 19 cases of severe toxaemia and 5 out of 14 cases of eclampsia (Dass and Bhagwanani, 1964 a, b). Significant increase in the binucleated cells was observed in almost all the cases, while the fat content was increased in 6 out of 34 cases. Lesions said to be pathognomonic of eclampsia were not observed in any case. Routine liver function tests showed no change in toxaemias of pregnancy as compared to normal pregnancy.

DISCUSSION

The changes in serum proteins and the various fractions observed by us in normal pregnancy are in agreement with Menon and Radha (1959) and Purandare and Agashe (1959) except that the latter found no significant change in α_1, α_2, and γ globulins. However, Brown (1954) and Kishore and Gupta (1963), like most of the western workers, observed a significant fall in γ-globulins.

In severe preclamptic toxaemia, we observed a fall in total proteins and albumin like all other workers. The insignificant changes in α_1 and α_2-globulins and significant fall in γ-globulins in the present series are in agreement with findings of Menon and Radha (*loc. cit.*) and in contradiction to observations of Purandare and Agashe (*loc. cit.*) and Flynn (1954). However, like Purandare and Agashe (*loc. cit.*) we found no significant change in β-globulin. Menon and Radha (*loc. cit.*) observed a significant fall.

Eclampsia—The changes in total proteins, albumin, α_1 and α_2-globulins were similar to those reported by Mack *et al.* (1951) and Menon and Radha (*loc. cit.*). We confirmed their observations that total serum proteins are a little higher in cases of eclampsia than in cases of severe toxaemia. This has been attributed to the haemoconcentration that existed in cases of eclampsia. Like Flynn (*loc. cit.*) we observed an insignificant rise in β-globulins. Mack *et al.* (*loc. cit.*), Kulkarni *et al.* (1959) and Menon and Radha (*loc. cit.*) however, observed a fall. Like Purandare and Agashe (*loc. cit.*) we failed to observe a fall in γ-globulins as compared to normal pregnancy. Khanijo and Jungalwalla (1963) observed a rise in α_1 and α_2-globulins and a fall in β and γ-globulins. Serum protein changes can be attributed to the altered protein metabolism during pregnancy (Tovey, 1959). The kidneys primarily catabolise proteins of low molecular weight. In health protein loss equals replacement, while in diseased states there is increased loss, specially of albumin (being of the lowest molecular weight) and relative rise of α_2-globulin (being of the highest molecular weight). Hence the principal changes in toxaemia of pregnancy suggest increased renal catabolism. However, rise in α_2-globulin is not explained. Liver produces albumin, α_1, α_2 and β-globulins and it is possible that liver damage, if any, in pre-eclampsia and eclampsia would be reflected in the changes in these fractions. We therefore tried to correlate the clinical severity of the disease and other indices of liver damage namely S.G.P.T., liver biopsy, liver function tests and the changes in serum proteins.

No constant relationship was observed between protein patterns and the duration and severity of the disease, number of convulsions, oedema, blood pressure, proteinuria, diet or routine liver function tests. The same was also true of necrosis of liver in biopsy study. However, though S.G.P.T. showed no correlation with the severity of the disease in individual cases, it was often and more abnormally raised in severe toxaemia and eclampsia (Dass and Bhagwanani, 1964 a, b). A fairly good correlation was also observed between S.G.P.T. and the occurrence of coma, liver enlargement, S.G.P.T. and proteinuria. Improvement in the clinical condition was seen to be associated with changes in the electrophoretic patterns towards normality whereas poor response to therapy was unaccompanied by such changes.

Table 3 shows that rise in S.G.P.T. levels is associated with a corresponding rise in α_1 and B-globulins, the relationship being more marked with β-globulin.

TABLE 3—SHOWING RELATIONSHIP BETWEEN S.G.P.T. AND TOTAL SERUM PROTEINS AND VARIOUS FRACTIONS

S.G.P.T. units/ml.	No. of cases	Total proteins (g.%)	Differential protein percentage				
			Albumin	Globulins			
				α_1	α_2	β	γ
0—34 ...	26	5·73	39·30	7·5	14·53	17·66	17·20
35—134 ...	7	5·5	41·03	7·34	14·91	18·6	17·57
135—234 ...	9	5·3	33·92	8·55	16·96	20·28	21·69
235 and over ...	3	5·99	38·37	10·74	14·60	21·71	14·36

TABLE 4—SHOWING MAXIMUM LEVEL OF S.G.P.T. AND SERUM PROTEINS IN CASES WITH NECROSIS OF THE LIVER

Clinical condition	S.G.P.T. units/ml.	Total proteins (g.%)	Differential protein percentage				
			Albumin	Globulin			
				α_1	α_2	β	γ
Severe toxaemia							
Mean for cases with necrosis ...	130	5·02	35·45	7·46	15·20	24·04	17·87
Mean for whole group ...	40·6	5·34	38·73	7·98	16·36	19·78	17·0
Eclampsia							
Mean for cases with necrosis ...	237·6	5·79	38·43	9·65	14·05	20·11	19·85
Mean for whole group ...	176·2	5·60	36·63	8·75	17·04	18·65	19·17

This might have some correlation with the fact that the S.G.P.T. in pathological sera is mainly bound to β-globulin. Cases of eclampsia showing necrosis of the liver had comparatively higher values of serum proteins compared to the mean values in eclampsia (Table 4). This is probably due to a greater degree of haemoconcentration in these cases, but the number is insufficient to draw any definite conclusions. Cases of severe preeclampsia and eclampsia associated with necrosis of the liver also showed fall in α_2-globulin and rise in β-globulin. In these cases, S.G.P.T. was also comparatively higher (Table 4). The rise in S.G.P.T. was not always associated with necrosis of the liver as seen in biopsy material. It is, however, possible that the lesion may have been missed as hepatic lesions in eclampsia are known to be patchy and variable.

SUMMARY

It would seem that toxaemia of pregnancy is associated with liver damage which is more often present in severe than in mild toxaemia and almost always present in cases of eclampsia. The clinical severity of the disease is not always an index of hepatic damage. The latter is most often revealed by rise in S.G.P.T. than any other clinical or laboratory data. Perinatal mortality is much higher in cases associated with elevated S.G.P.T. and hence the latter may also indicate the foetal prognosis and may indicate the best time for termination of pregnancy in problem cases. However, further work needs to be done along these lines. Its assay is valuable in differentiating eclampsia from other causes of convulsions in pregnancy. As there is much overlap in the values of serum proteins in all grades of toxaemia of pregnancy and even in the nephrotic syndrome, their study is not of much diagnostic value. Return of the serum proteins towards the normal indicates improvement in the clinical condition. However, better diagnostic and prognostic accuracy can be obtained with the comparatively easier and less tedious transaminase assay.

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VIRAEMIA IN HAEMORRHAGIC AND OTHER FORMS OF SMALLPOX

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Smallpox has been classified into various types and named accordingly by different authors (Maegraith, 1956 ; Dixon, 1962 ; Rao, 1963). All these classifications have been made on clinical grounds based mainly on the severity of the cases, type and distribution of the lesions on the skin, haemorrhagic manifestations, etc. But whatever descriptive terms are used for all the types of cases in different classifications it is an undoubted fact that the haemorrhagic variety, specially that in which haemorrhagic manifestation is seen early in the disease, is the most dreadful form of smallpox with a mortality rate of nearly hundred per cent.

In the pathogenesis of smallpox, it is well known that viraemia is followed by localisation of the virus in the skin and subsidence of temperature. Specific antibodies also appear in the circulation during this time. In haemorrhagic smallpox cases the pattern of onset of the disease is somewhat different. The purpose of the present paper is to determine the extent and duration of viraemia in haemorrhagic and other varieties of smallpox cases, in order to find out if this can be a factor along with others (such as immunity response of the patients and virulence of the causative virus strains) responsible for production of the severe clinical picture that is seen in haemorrhagic smallpox.

MATERIAL AND METHOD

All the cases investigated and included in the present series were admitted in Infectious Diseases Hospital, Calcutta. Brief clinical notes including the duration of illness and history of vaccination of the cases were recorded. The duration of illness has been counted from the day of onset of fever. In some haemorrhagic and other types of cases, the vaccination scar could not be easily discernible due to bad condition of the skin of the arm. A few other cases, said to have been vaccinated before, did not show any vaccination scar. Therefore, history of vaccination of both these groups was recorded as 'not known'.

Blood samples were drawn from the patients soon after admission into the hospital. The sera were inoculated on the chorio-allantoic membranes (CAM) of embryonated eggs in the standard manner (Sarkar *et al.*, 1959). At first, each serum was inoculated undiluted as well as in a dilution of 1 in 10. Four eggs were used for each dilution of sera. The virus positive sera were re-inoculated in serial ten-fold dilutions to find out the end titre of virus in the sera. Titre of virus in the sera was calculated from the count of pocks on the CAM.

For simplicity and convenience, the cases have been classified broadly into three types: (1) Haemorrhagic—In these, there were early haemorrhage into the skin and mucous surfaces. Patients were extremely toxic and mortality was very high. (2) Confluent—In this group, pocks on the skin were so plentiful that no healthy skin was visible in between the lesions specially on the face or the limbs. Toxicity and mortality were lower than that in the haemorrhagic group. (3) Discrete—The number of lesions on the skin was much less, with healthy skin in between the lesions, both on the face and limbs. Patients were not toxic and mortality was almost nil.

Roughly, the 'fulminating', 'malignant confluent' and 'malignant semi-confluent' cases of Dixon (*loc. cit.*) correspond to the haemorrhagic cases of the present series, his 'benign confluent' and 'benign semi-confluent' cases to our confluent group, and his 'discrete', 'mild' and 'abortive' cases to our discrete group. Of the cases admitted very early in the present series, the clinical classification was made provisional and was confirmed at a later stage of the disease.

RESULTS

Titres of virus in the sera of 15 haemorrhagic, 15 confluent and 15 discrete cases, all collected within 6th day of illness are shown in Table 1. The haemorrhagic cases, because of their alarming symptoms from the very beginning, got admitted into the hospital and were available for investigation much earlier than the confluent and discrete cases. But as there was no haemorrhagic case

TABLE 1—SHOWING TITRE OF VIRUS IN THE SERA OF HAEMORRHAGIC, CONFLUENT AND DISCRETE CASES, ALONG WITH DAY OF ILLNESS AND VACCINATION HISTORY

Sl. No.	Day of illness	Titre of virus PFU/ml.	Previous vaccination
		HAEMORRHAGIC TYPE	
1	3	7×10^3	No
2	3	7×10^3	,,
3	3	6×10^3	,,
4	5	7×10^2	,,
5	4	5×10^3	,,
6	4	2×10^3	,,
7	5	2×10^1	,,
8	4	2×10^1	Not known
9	6	1×10^1	,,
10	3	5×10^4	No
11	3	10^6	,,
12	3	10^5	,,
13	3	3×10^4	,,
14	4	3×10^1	,,
15	3	3×10^4	Not known
		DISCRETE TYPE	
16	4	Nil	Yes
17	4	,,	,,
18	5	,,	,,
19	4	,,	Not known
20	3	,,	Yes
21	5	,,	,,
22	6	,,	,,
23	4	,,	No
24	5	,,	,,
25	3	,,	Yes
26	4	,,	,,
27	3	,,	Not known
28	4	,,	No
29	3	,,	Yes
30	4	,,	,,
		CONFLUENT TYPE	
31	5	10^3	No
32	5	Nil	,,
33	4	,,	Yes
34	4	,,	,,
35	6	,,	No
36	6	,,	Yes
37	3	,,	No
38	5	,,	Yes
39	5	,,	,,
40	3	,,	Not known
41	4	,,	No
42	3	,,	,,
43	3	,,	Yes
44	3	,,	No
45	6	,,	Yes

admitted after the 6th day of illness, the other two types of cases admitted only up to the 6th day of illness have been included in this work.

No virus could be isolated from the sera of discrete cases, and the serum of only one confluent case was positive. On the other hand, sera of all the haemorrhagic cases yielded virus on culture, and the virus titre, as high as 10^6 pock forming units (PFU) of virus per ml. of serum, could also be obtained in this group.

DISCUSSION

Any clinician, who had the chance of seeing many haemorrhagic smallpox cases, will admit that they form a distinct entity, with characters far different from those of the other types of cases of smallpox (Rao, 1964). Its picture is sometimes indistinguishable from those of other haemorrhagic fevers, and isolation of virus may be the only means of diagnosis in such situations.

As mentioned earlier, viraemia always occurs in smallpox but in the present series virus could not be isolated from the sera of any of the fifteen discrete cases, and in 14 out of 15 confluent cases. But successful isolation of virus in the sera of all the 15 haemorrhagic cases in the present series forms a strong contrast. Of course, it cannot be denied that the haemorrhagic cases were available for investigation a little earlier than the other two types of cases (average number of days of illness in the haemorrhagic cases being 3·5 as against 4·4 for confluent and 4 for discrete cases), but the percentage of successful isolation in the haemorrhagic cases and the high virus titre in some of their sera far outweigh that consideration. Sera of all the five confluent cases (No. 37, 40, 42, 43, 44) and four discrete cases (No. 20, 25, 27, 29) collected on the 3rd day of illness were negative. However, it cannot be denied, that if the last two varieties of cases were available for investigation earlier, probably a good number of their sera could have been found positive.

Questions may naturally be asked as to the cause of such prolonged viraemia in the cases of haemorrhagic smallpox, and a possible answer can be derived from a recent work of Sarkar *et al.* (1966). It was shown in that work that almost all the 25 haemorrhagic cases of that series had practically no or negligible amount of haemagglutination-inhibiting (HI) and neutralising antibodies in their sera, whereas, there was fairly high level of those two antibodies in the sera of 25 confluent and 25 discrete cases, although the sera of all the three types of cases were collected early in the disease. Generally speaking, viraemia should cease after antibodies in high concentration appear in the circulation. Therefore, the finding of prolonged period of viraemia in haemorrhagic cases having no or neglible antibody response in them is consistent with this idea. In this connection it is significant to note that none of the haemorhagic cases mentioned in this work (and from whom reliable vaccination history could be obtained) had ever been vaccinated. However, haemorrhagic type of smallpox has been reported in cases having been vaccinated before (Rao, 1964). But it should be remembered that persons who had been vaccinated many years ago and not revaccinated subsequently may not have detectable antibody in their sera, and therefore may be as susceptible to infection as an unvaccinated person. So detection of vaccination scar may not have decisive bearing on the assessment of immunity status in smallpox.

There is no proof, however, that prolonged circulation of virus, even in high titre, is the cause of haemorrhagic manifestations as seen in the haemorrhagic variety of smallpox. Further work is needed to find out the exact mechanism of haemorrhage in these cases.

Whether all cases with no or negligible antibody in circulation will develop haemorrhagic or severe confluent types of smallpox is a different question. Virulence of the causative virus strain should also be taken into consideration. Sarkar and Mitra (1966), by employing a number of laboratory tests, have shown that there is difference in the percentage of virulent virus strains isolated from haemorrhagic, confluent and discrete cases. Highest percentage of strains from haemorrhagic cases were virulent ; next in order was the number of strains isolated from confluent cases, and there was no strain isolated from discrete cases that proved to be virulent by all the tests employed. So it is quite possible that both the factors—virulence of the causative virus strains as well as lack of antibody response in the patients (resulting in prolonged viraemia), come into play in the causation of haemorrhagic variety of smallpox.

Summary and Conclusion

Titre of virus in the sera of 15 haemorrhagic, 15 confluent and 15 discrete cases of smallpox, all collected within the sixth day of illness, was determined by inoculating the sera into the chorio-allantoic membrane of eggs.

All the sera of discrete cases, and all except one of confluent cases were negative for virus. But hundred per cent of the sera of haemorrhagic cases were positive, the titre of virus in terms of pock forming units ranging from 10 to 10^6 per ml. of serum.

It is suggested that the prolonged viraemia in haemorrhagic smallpox is due to the lack of antibody response. It is postulated that this factor together with more virulent nature of the causative virus strains play important role in the production of haemorrhagic variety of smallpox.

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PRACTITIONERS' SERIES

MODERN TRENDS IN THE THERAPY OF AMOEBIASIS

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As defined by Kasliwal (1954), the term 'amoebiasis' includes all the signs, symptoms and conditions produced in an individual by the invasion of his tissues by the pathogenic amoeba known as *E. histolytica*, and thus represents a problem or rather a multitude of problems. Indirect evidence for the possible occurrence of amoebic infection and its treatment in the ancient times is, however, available only in the prevailing practice of treatment of the dysenteries with ipecac bark in Peru and with kurchi bark (*Holarrhena antidysenterica*) in India, and in both of these early cures for dysenteries, only amoebicidal activity has been demonstrated by modern work (Shaffer *et al.*, 1965). Although it has been convincingly stated by numerous authors (Faust, 1961 ; Wilmot, 1962) that infection with *E. histolytica* undoubtedly has a world-wide distribution, irrespective of the latitude, it is more frequently prevalent in the tropics than in the temperate or cool climates (Kasliwal, 1962). In India, the disease is one of the most common amongst all the bowel diseases encountered, and is one of the commonest diseases met with both in general and specialised hospital practice (Kasliwal and Sethi, 1960 ; Das Gupta, 1964). The incidence of infection with *E. histolytica* in the different parts of this country has been variously stated to be from 3·8 per cent to 43·3 per cent in the numerous reports published (Misra and Samant, 1950 ; Shrivastava, 1953 ; Kasliwal, 1954 ; Anand, 1954 ; Chuttani *et al.*, 1955 ; Chuttani *et al.*, 1961). While Anand (*loc. cit.*) found about 15·5 per cent of the population of Rajasthan infected with *E. histolytica*, Kasliwal (1954) in a study of 7,409 hospital admissions, reported an incidence of 6·8 per cent from the same region. In Rajasthan where sanitation and the hygienic conditions are poor and very favourable for widespread dissemination of the protozoa, the disease has only been stressed upon as a clinical entity of great importance to all clinicians, especially gastroenterologists only in the last decade or so, although it is very common (Kasliwal and Sethi, *loc. cit.*).

In spite of the numerous advances made and the large number of therapeutic agents available at present, modern therapy of amoebiasis, according to many authors (Das Gupta, *loc. cit.*), yields only a 75 per cent to 78 per cent cure, irrespective of the treatment given, and relapses occur in about 33 per cent.

CLASSIFICATION OF THE DIFFERENT THERAPEUTIC AGENTS AVAILABLE FOR THE TREATMENT OF AMOEBIASIS

PREVIOUSLY RECOGNISED ANTIAMOEBICS :

The drugs available for the treatment of amoebiasis have been previously classified into the following groups by the various authors who have discussed the subject (Kasliwal and Sethi, *loc. cit.*) and forms the basis of the clasification given below :

(a) *Plant alkaloids and related synthetic compounds*—(1) Emetine hydrochloride, (2) emetine bismuth iodide (E.B.I.), (3) dehydroemetine hydrochloride (mebadin or Ro 1—9334), and (4) conessine and isoconessine.

(b) *Halogenated hydroxyquinolines*—(1) Yatren or chiniofon, (2) Diiodoquin (embequin or diiodohydroxyquinoline) and (3) vioform or enterovioform (iodochlorhydroxyquinoline).

(c) *Arsenical compounds*—(i) Pentavalent: (1) Acetarsol (or acetarsone or stovarsol), (2) carbarsone (or leucoarsone), (3) glycobiarsol (or milibis), and (4) treparsol. (ii) Trivalent: (1) Arsthinol (or balarsen), (2) carbarsone oxide, and (3) thiocarbarsone.

(d) *Aminoquinoline derivatives*—(1) Chloroquine (or aralen, resochin or nivaquine), (2) amodiaquine (or camoquin), and (3) camoform (or biallylamicol).

(e) *Sulphonamides and antibiotics*—(1) Succinylsulphathiazole, (2) phthalylsulphathiazole, (3) penicillin, (4) tetracyclines, especially terramycin (or oxytetracycline), (5) fumagillin, (6) paromomycin (humatin), (7) erythromycin (erythrocin), (8) neomycin, (9) other miscellaneous antibiotics, seldom employed, i.e., chloramphenicol, bacitracin, puromycin, spiramycin, carbomycin, synermycin and many others.

(f) *Acridine derivatives*—(1) Mepacrine (or atabrine, quinacrine).

(g) *Phenanthroline compounds*—(1) Compound 11925 and (2) compound 11925 C (entobex).

(h) *Diamine compounds*—(1) M A—268 and (2) M A—307.

(i) *Dichloroacetamide derivatives*—(1) Chlorophenoxamide (mebinol) and (2) chlorobetamide or mantomide.

(j) *Miscellaneous compounds*—(1) Glaucarubin (or glarubin), (2) diloxanide (or entamide)—entamide benzoate, entamide piperazine sulphate, entamide furoate (furamide), (3) furazolidone (furoxone), (4) a combination of the two derivatives (i.e., 7 parts of 5, 7, dibrome-8-hydroxyquinoline and one part of 5, 7, dibrome-8-benzyloxyquinilidine) or intestopan, and (5) 5, 7.—dichloro-8-hydroxyquinaldine (siosteran).

MORE RECENT ANTIAMOEBICS :

Of the large number of anti-amoebic drugs listed above, many are well known to the medical profession since the last many years and only an attempt will be made here to review the important properties, present status, results of the various clinical trials (especially those conducted in India), relative advantages and disadvantages, side effects, toxic reaction, etc., of the comparatively recent members of the group. These have been considered to include :

(1) Dehydroemetine (mebadin), (2) diloxanide (entamide), especially diloxanide furoate (furamide), (3) paromomycin (humatin), (4) chlorophenoxamide (mebinol), (5) chlorobetamide or mantomide, (6) various tetracyclines, especially oxytetracycline (terramycin), (7) other antibiotics, specially erythromycin, (8) furazolidone (furoxone), (9) intestopan, (10) phenanthroline compounds (entobex), and (11) diamine compounds.

Lastly, the various combinations of these drugs suggested so far by many authors (Kasliwal and Sethi, *loc. cit.* ; Wilmot, *loc. cit.*) are also briefly compared from the viewpoint of clinical utility and a few concluding remarks on the status of prophylactic treatment as well as the psychosomatic considerations in the therapy of patients with *E. histolytica infection* (Shaffer *et al., loc. cit.*) are offered.

(I) *Dehydroemetine*—Emetine hydrochloride has been used in the treatment of acute amoebic dysentery since Rogers advocated it as far back as 1912. So far the most efficient, effective, and commonly used drugs for the treatment of amoebic hepatitis and abscess of the liver both of which are commonly encountered conditions in this country, have been emetine hydrochloride and chloroquine (Gupta and Agarwal, 1964 ; Sardesai and Patil, 1965). However, it is well known that emetine produces serious toxic effects such as bradycardia, arrhythmias, hypotension, myocarditis, nausea, vomiting or diarrhoea, oliguria, polyneuritis, visual disturbances, electrocardiographic changes, etc., to enumerate only a few of the very well known and more frequent toxic effects (Heilig and Visveswar, 1943 ; Speer *et al.*, 1963 ; Merchant and Shikaripurgar, 1964).

In the search for safer, specific and equally effective drugs a new related synthetic compound, which is chemically racemic 2-dehydroemetine dihydrochloride was elaborated in 1959 by Brossi *et al.*, quoted by Merchant and Shikaripurkar (*loc. cit.*), at the Roche Laboratories (Ro 1-9334) and several workers in India have recently employed this drug clinically by the parenteral (i.e., deep subcutaneous or intramuscular) routes with satisfactory results (Ajai Shankar *et al.*, 1964 ; Gupta and Agarwal, *loc. cit.* ; Kapadia, 1964 ; Kini and Pai, 1964 ; Merchant and Shikarpurkar, *loc. cit.* ; Patel *et al.*, 1965 ; Raghunathan *et al.*, 1965). Sardesai and Patil (*loc. cit.*) have recently conducted a therapeutic trial using dehydroemetine by the oral route.

Merchant and Shikaripurkar (*loc. cit.*) have summarised the various advantages of dehydroemetine as compared to emetine hydrochloride ; dehydroemetine is a synthetic product and its toxicity is reported to be only half as much as that of emetine (Brossi *et al.*, quoted by Merchant and Shikaripurkar, *loc. cit.*). Because of this low toxicity and the high rate of metabolism of dehydroemetine both repeated courses as well as a higher dosage of the drug may be administered, if necessary in the treatment of patients with amoebic hepatitis or amoebic liver abscess ; in these two clinical situations it would be inconceivable to use emetine hydrochloride in a similar fashion or a corresponding dose-range.

Many clinical trials have been conducted in the various parts of India, in which 40 mg. to 80 mg. of dehydroemetine was administered daily by the intramuscular or deep subcutaneous routes for six to twelve days. Cure rates as high as 92·5 per cent to 100 per cent have been reported in amoebic hepatitis and in amoebic abscess of the liver (Ajai Shankar *et al., loc. cit.* ; Kapadia, *loc. cit.* ; Merchant and Shikaripurkar, *loc. cit.* ; Raghunathan *et al., loc. cit.*) ; in acute intestinal amoebiasis or acute amoebic dysentery also, the excellent therapeutic efficacy of dehydroemetine has been demonstrated (Kini and Pai, *loc. cit.* ; Merchant and Shikaripurkar, *loc. cit.* ; Patel *et al., loc. cit* ; Kapadia, *loc. cit.* ; Raghunathan *et al., loc. cit.*), the observed cure rates being again 94 per cent to 100 per cent. The drug was not found to be much effective in chronic intestinal amoebiasis (Gupta and Agarwal, *loc. cit* ; Kapadia, *loc. cit.*). Gupta and Agarwal (*loc. cit.*), moreover, concluded that dehydroemetine proved very disappointing in amoebic liver abscess and commented that, on the whole, while it was very well tolerated it was also therapeutically less effective than both emetine or chloroquine. The maximum effective dose was found to be 80 mg./day by Gupta and Agarwal (*loc. cit.*), and they also confirmed the much lower toxicity of the drug in comparison to emetine (especially in relation to the cardiovascular system), stressed upon by the majority of authors.

(II) *Diloxanide* (*entamide*) — Diloxanide or entamide is another recent antiamoebic drug with promising therapeutic activity ; Woodruff and Bell (1960) published one of the earliest reports in favour of its clinical and therapeutic utility in amoebiasis. There are three derivatives in the same group, viz., entamide benzoate, entamide piperazine sulphate, and entamide furoate (furamide).

Out of these three compounds, entamide furoate (furamide) is found to be most effective and toxicity studies have shown that furamide is remarkably non-toxic. Reports from many parts of the world, including some from India, have now substantiated the value of furamide in the treatment of intestinal amoebiasis (Woodruff and Bell, *loc. cit.* ; Forsyth, 1962 ; Suchak *et al.*, 1962; Padaria and Patel, 1963 ; Dhariwal *et al.*, 1963). In most of these reports, a standard ten-day course of therapy with furamide employing 0·5 g. (one tablet) of the drug thrice a day has been analysed. The reported cure rate has varied from 80 per cent (Jain and Bhachawat, 1964) to as high as 95 per cent in the series of Suchak *et al.* (*loc. cit.*). Forsyth (*loc. cit.*) compared furamide with E.B.I., biallylamicol hydrochloride and paromomycin in the treatment of 245 unselected cases of amoebiasis in Kuwait, and observed that furamide was the best tolerated, and hence recommended it as an ideal therapeutic agent for the treatment of co-operative ambulatory outpatients. While many of the investigations (Woodruff and Bell, *loc. cit.*; Suchak *et al.*, *loc. cit.*) have commented on the early clearance of the parasite between the third and the fourth day of starting treatment, Dhariwal *et al.* (*loc. cit.*) have reported control of the symptoms of acute dysentery on an average between the 3rd and the 5th day. The only side-effects observed by the various authors have been nausea, flatulence and oesophagitis (Padaria and Patel, *loc. cit.*).

(III) *Paromomycin* (*humatin*)—It is a newly developed wide-spectrum non-toxic antibiotic, which exhibits both effective amoebicidal and wide antibacterial activity. There are a number of publications reporting the successful treatment of both acute and chronic intestinal amoebiasis with paromomycin, and the doses employed have varied between 7·5 to 30 mg./kg. per day for periods from five to ten days (Bell and Woodruff, 1960). In India, Chaudhuri *et al.* (1961), summarising their experience with paromomycin in 20 patients of intestinal amoebiasis (the dose given being 150 mg. six hourly for seven days) reported diarrhoea in eight patients towards the completion or even after the course of antibiotic was over. The stool was negative for *E. histolytica* between the 2nd and 3rd days of treatment, in 13 patients and between the 4th and 6th days in five patients (cure rate in this series being 90 per cent). Systemic toxicity or side-effects with oral administration of the antibiotic are reported to be not significant problems, as the antibiotic is not appreciably absorbed from the gastrointestinal tract (Bell and Wooruff, *loc. cit.*; Chaudhuri *et al.*, 1961), the slight side-effects occurring consisting mainly of diarrhoea and/or some abdominal discomfort.

(IV) *Chlorophenoxamide* (*mebinol*)—Out of the three compounds of the dichloroacetamide group studied, it has been found that chlorophenoxamide (mebinol) is the most useful. Chlorphenoxamide has been reported to be of very low toxicity and also clinically effective in the treatment of various forms of intestinal amoebiasis (Shah *et al.*, 1960; Kasliwal and Sethi, 1961). The dosage of the drug suggested being two tablets (each of 0·25 g.) thrice a day for ten days, and courses of treatment can be repeated if indicated (Chaudhuri *et al.*, 1959). Shah *et al.* (*loc. cit.*) treated 87 patients with acute or chronic intestinal amoebiasis with mebinol. They reported clinical cure as well as parasite clearance from the stools in 91 per cent of the patients after a follow-up of three weeks.

(V) *Chlorobetamide or mantomide*—This second dichloroacetamide derivative, introduced into therapy in 1954, enjoyed a very limited utility in the therapy of both chronic and asymptomatic amoebiasis. Used alone in acute amoebic dysentery, it has been found to be ineffective, and although toxicity is low, skin rashes following therapy have been reported. A dose of 2 g. daily for ten days is recommended.

(VI) *Tetracyclines* (*especially terramycin*)—Of the four members of the tetracycline group, which are useful by the oral route for the treatment of amoebiasis. oxytetracycline (terramycin) is the preparation of choice in therapy of this condition, both by virtue of its immediate effect in intestinal amoebiasis, and also by limiting the incidence of relapses (Kasliwal and Sethi, 1960). Kasliwal and Sethi (1959) have strongly emphasised that out of the various antibiotics so far employed or suggested in the treatment of amoebiasis, oxytetracycline (terramycin) has till now the best record in therapy, in therapeutic efficacy as well as the very low incidence of undesirable side-effects.

(VII) *Erythromycin* (*erythrocin*) *and other antibiotics*—Doses of erythromycin for the treatment of intestinal amoebiasis have varied from 800 mg. to 2,400 mg. daily for a period of ten days. Powell *et al.* (1958) and Wilmot (*loc. cit.*) have found that erythromycin was less effective than the tetracyclines in the treatment of intestinal amoebiasis. Although successful therapy of intestinal amoebiasis with this antibiotic has been reported by a few authors, others have observed a high relapse rate (McHardy *et al.*, 1955). The incidence of relapse in intestinal amoebiasis with erythromycin, however, seemed lower when higher dosages of the antibiotics were employed ((Wilmot, *loc. cit.*).

(VIII) *Furazolidone* (*furoxone*)—Furazolidone (furoxone) is a member of the synthetic group of nitrated furan (nitrofuran) derivatives. Furazolidone is bactericidal and highly effective both *in vitro* and *in vivo* against a wide variety of gram-positive and gram-negative organisms, as well as several pathogenic protozoa. Massa (1959) in a clinical trial at Bombay in 58 patients suffering from diarrhoea of varying severity and due to different intestinal pathological states, treated these cases with furoxone (usually one tablet of 100 mg. four times a day). Four of these patients, suffering from *E. histolytica* infection responded extremely well to treatment with furazolidone, and one of them had amoebic hepatitis in addition to the amoebic colitis. However, the status of furazolidone (furoxone) in the therapy of intestinal amoebiasis is still controversial due to lack of adequate trials.

(IX) *Intestopan*— Kedarnath and Sarikwal (1965) in their recent trial upon 102 patients with intestinal amoebiasis, administered intestopan in a dose-regime of two tablets thrice a day for ten days. They reported an overall 'cure-rate' of 80·33 per cent and a relapse-rate of 19·67 per cent. El Rooby *et al.* (1962), in an earlier trial in only 19 patients of amoebiasis in which most of the patients could be followed for one month, reported a relapse in five, the overall 'cure-rate' in this earlier trial being thus only 73·7 per cent with a 'relapse-rate' of 26·3 per cent. No severe side-effects due to the drug have been recorded by Kedarnath and Sarikwal (*loc. cit.*).

(X) *Phenanthroline compounds and* (XI) *diamine compounds*—Kasliwal and Sethi (1959, 1961, 1962) have already discussed the therapeutic status of the phenanthroline and the diamine compounds, and hence, these will not be reviewed again in this communication, as they are of doubtful utility in the therapy of infection with *E. histolytica* when employed singly in its treatment.

COMBINATION OF DRUGS IN THE THERAPY OF AMOEBIASIS

In spite of the large number of drugs which exist today for the therapy of amoebiasis, there is still hardly any one of them which can satisfactorily meet the various criteria expected in an ideal amoebicidal drug. In the opinion of Kasliwal and Sethi (1961) "ideally speaking a satisfactory amoebicide would be one which will be effective against both the trophozoites and the cysts of the parasite, which will have an effective bactericidal action, which could be administered preferably orally and after being absorded attains an effective concentration in the amoeba-infested tissues, with little or no adverse reactions in the host".

For a most effective and complete treatment the combination of the following drugs has proved to be most efficacious : Terramycin capsules, 250 mg. 6 hourly for 6 days, and emetine hydrochoride by the intramuscular route (1·0 grain/day in adults) for an average of six days, followed by the oral administration of either a combination of chloroquine diphosphate and one of the amoebicidal arsenicals (i.e., neoviasept) or a combination of chloroquine phosphate and di-iodohydroxyquinoline (i.e., amicline or resotren compositum). These combined preparations are usually administered in a dosage of two tablets thrice a day, for periods which vary from ten days to 2 to 3 weeks, depending not only upon the individual patients, but also to some extent upon the combination used. In our clinical experience, this complete regime has yielded a high cure-rate and the relapse-rate is very low.

This multipronged attack on amoebiasis, as suggested above, is intended to achieve simultaneously an antibiotic action on the symbiotic bacterial flora in the intestinal lumen or any secondary bacterial infection present by the oxytetracycline, an amoebicidal action at the hepatic level by emetine in the initial phase of therapy, and by chloroquine later on ; in addition, the well-recognised value of di-iodohydroxyquinoline in intestinal amoebiasis' is also utilised. It has been repeatedly demonstrated unequivocally, that the incidence of hepatic involvement in 'intestinal amoebiasis' is surprisingly high, and Radke (1954) concluded that there is hepatic involvement in almost every case of amoebiasis. In the series of Kasliwal and Gambhir (1960), comprising 1934 patients, the incidence of 'pre-hepatitis' stage was more than 50 per cent, that of definite amoebic hepatitis was 16 per cent, and amboebic abscess of the liver was seen in 2·2 per cent. Because of such a high incidence of involvement of the liver in amoebiasis, the combined regime suggested above, necessarily includes amoebicidal drugs acting on the hepatic involvement as well (i.e., emetine and chloroquine).

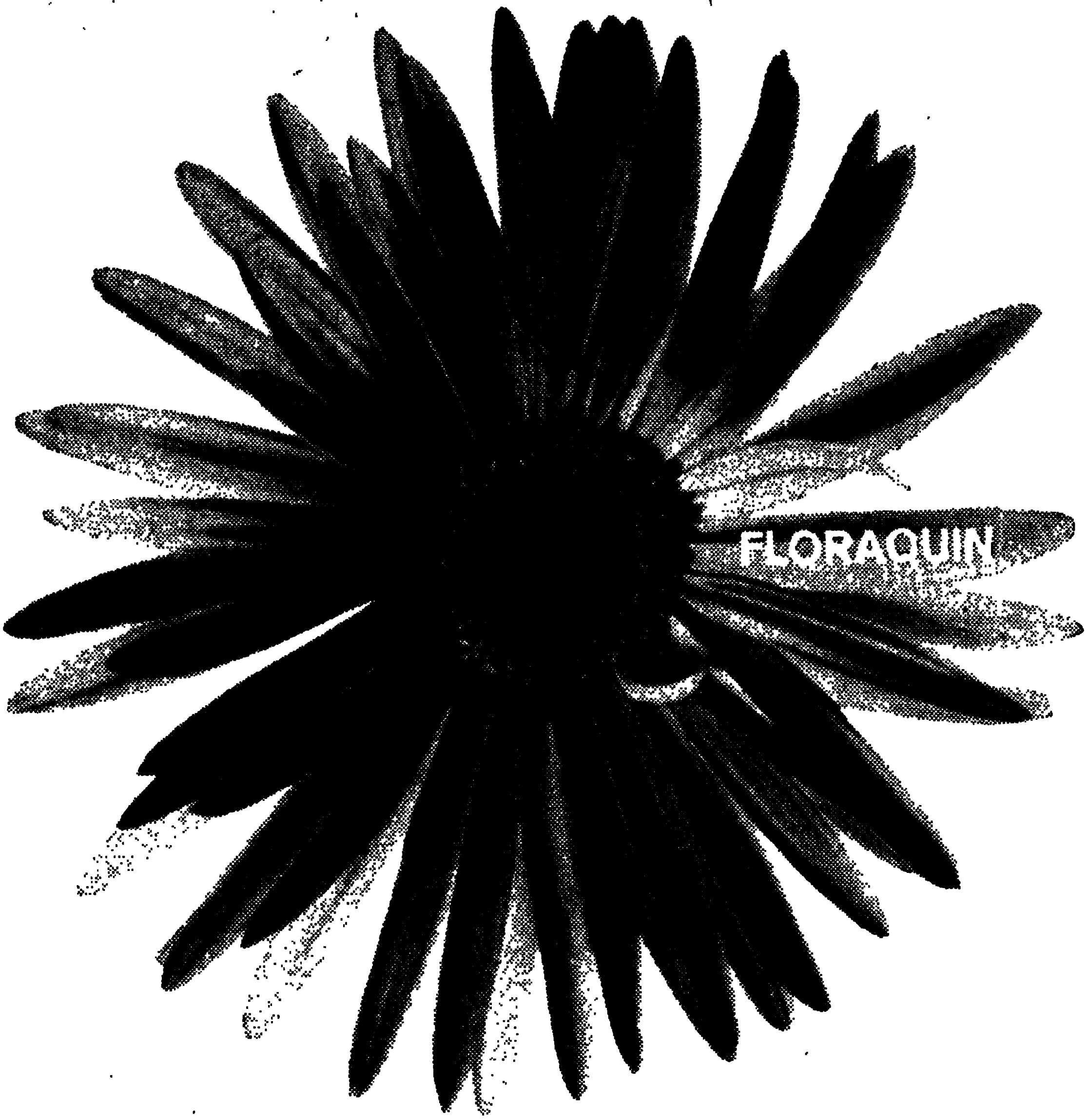
These drugs are almost always preferably supplemented in our clinical practice by a good multivitamin preparation, especially a vitamin B complex preparation, and/or an effective and reliable brand of yeast tablets in adequate dosage, as well as an acid-pepsin mixture (or any proprietary preparation containing the enzymes pepsin, papain, diastase, etc.). These supplements correct the associated deficiency which is very frequently present in these patients, and are also useful in poor digestion and anorexia, also commonly encountered. The digestion in chronic amoebiasis cases is generally poor, and a proper, low-residue, nutritious and easily assimilable diet is of the utmost importance. Fatty and highly spiced food, fried food stuffs, etc., which are not usually well tolerated are, obviously, preferably avoided.

PSYCHOSOMATIC CONSIDERATIONS IN THE THERAPY OF AMOEBIASIS

Shaffer *et al.* (*loc. cit.*) have recently emphasised that it is not very unusual or even surprising to find a number of patients suffering from a variety of depressive states and anxiety who are also infected with *E. histolytica* ; the relationship between the depressive effects, anxiety and amoebiasis may range from causal to only coincidental, and these authors consider it therapeutically wise to treat the patients presenting with this pattern, both medically for the amoebiasis along with simultaneous anti-depressant drug therapy and supportive psychotherapy.

PROPHYLACTIC TREATMENT

Prophylactic measures suggested include the daily administration of one tablet (500 mg.) of furamide given regularly (Woodruff and Bell, *loc. cit*), and also 500 mg. of chlorophenoxamide (mebi-



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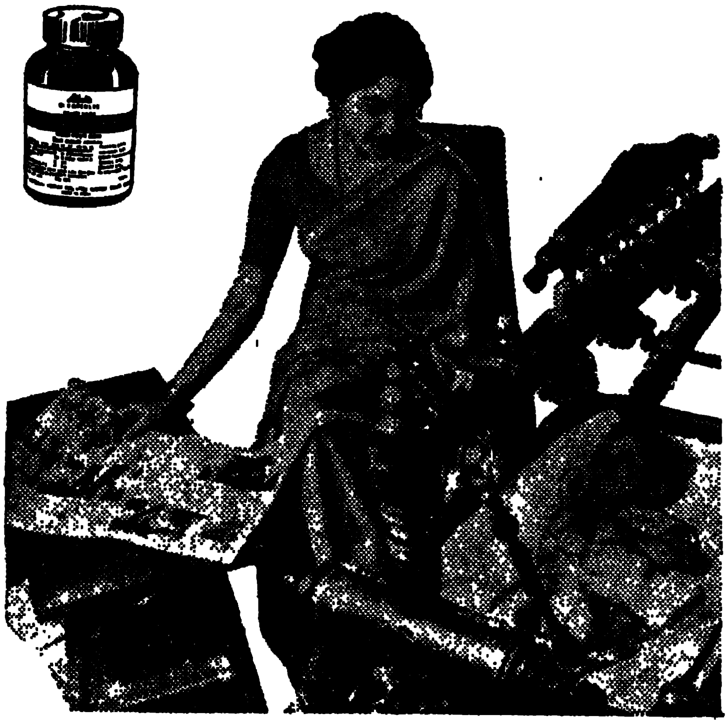

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nol) taken twice a week (Shah *et al.*, *loc. cit.*). It is not yet clear whether these regimes suggested above are only suppressive in their action, or possibly achieve 'true' chemoprophylaxis as claimed by the proponents of these regimes.

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SPECIAL ARTICLE

PULMONARY TUBERCULOSIS

Evaluation of the Common Diagnostic Techniques with Particular Reference to Sputum Examination by Direct Smear

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The knowledge in tuberculosis has much advanced in recent years and today we have got better and deeper understanding of its various facets than ever before, yet the complexity of the diagnostic problem has remained diversified. Accurate diagnosis, assessment, selection for chemotherapy or observation are still far from clear. A definite diagnosis of pulmonary tuberculosis depends on the demonstration by culture or animal inoculation of *M. tuberculosis* in the sputum, gastric washings or laryngeal swab, etc. But such evidence is not always easy to get due to technical and other difficulties. WHO

(1964) have suggested that "The most efficient and economical method of mass case finding is microscopic examination of sputum. It was also generally agreed that no definite diagnosis can be made by radiography alone." Other authorities (Editorial, 1965) have advocated positive bacteriological findings to be only way to definite diagnosis. Nevertheless, it should be borne in mind that sputum examination is not free from fallacies, besides the fact that there is less enthusiasm for giving sputum by lay people than to submit for a skiagraphy of the chest. Moreover, as it is well known that sputum may remain persistently negative in many cases of active pulmonary tuberculosis and therefore, delay to diagnose and institute therapy may prove dangerous to them. The object of this communication is to present our experiences from a retrospective study on the evaluation of the common diagnostic technology in pulmonary tuberculosis with special emphasis on the diagnostic role of sputum examination by direct smear method.

MATERIAL AND METHOD

This study consists of observations on 1000 cases of pulmonary tuberculosis detected at the T.B. Clinic, Eastern Railway, Jamalpur, during the period January 1962 to May 1965. The criteria for diagnosis were presence of symptoms and suggestive radiological lesions in all and demonstration of A.F.B. in sputum by direct smear in a certain percentage of cases. All the nonpulmonary cases have been excluded. Details were taken of their income, nature of work, whether they lived in railway quarters which are, on an average, somewhat superior to private houses, and presenting symptoms. In all the cases x-ray chest was taken either because they presented with symptoms or were suspects for other reasons or tuberculin-positive contacts. The radiological lesions were classified as 'minimal', 'moderately advanced' and 'far advanced' as per criteria laid down by U.S.A. National Tuberculosis Association (Heaf and Rusby, 1959).

Sputum was examined for A.F.B. by direct smear method in all the cases initially for 3 consecutive days. Tuberculin test was undertaken as per Mantoux technique (Harrison, 1962) using old tuberculin in 2 strengths, viz., 1 in 10,000 and 1 in 1000 at one week's interval and reading was taken after 72 hours. Those showing erythema and induration of less than 5 mm. were considered negative, 5-10 mm. +, and above 10 mm. ++. This test was done mainly in children and also in adults as a corroborative evidence if the diagnosis was in doubt. It was not done in sputum-positive and overt cases.

OBSERVATIONS

Incidence—Of all the 1000 cases, 605 (60·5 per cent) were males and 395 (39·5 per cent) females. Table 1 shows the break-up of cases, according to age-groups. It will be noticed that the highest prevalence was between the age-groups 21-40 years constituting 49 per cent of cases. The very low prevalence in the age-group 61 and above is due to the fact that the employees usually retire by the age of 58 years and are not eligible for any further treatment.

TABLE 1—SHOWING AGE-GROUPWISE BREAK-UP OF CASES STUDIED

Age group (years)	No. of cases
1—10	128
11—20	163
21—30	238
31—40	252
41—50	154
51—60	57
61 and above	8

Nature of work—Out of the total cases, 347 were adult females, 136 children and 517 employees. Employees were classified into three working groups as shown in Table 2.

TABLE 2—SHOWING CLASSIFICATION OF EMPLOYEES INTO VARIOUS WORKING GROUPS

Group	No. of cases
(a) Heavy manual workers	147 (28·5%)
(b) Light manual workers	284 (54·9%)
(c) Sedentary workers	86 (16·6%)

No definite correlation could be drawn with the nature of labour. The obviously high prevalence amongst 'light manual workers' is not really so, as it is just proportionate to the number of staff employed in that category. So also the incidence in 'sedentary workers' group, e.g., ministerial staff, supervisors, etc., was proportionate to the staff strength.

Economic status—The earning members of all the cases were divided into three groups. Table 3 indicates the pattern of economic status.

TABLE 3—SHOWING ECONOMIC STATUS IN RELATION TO DISEASE

Pay group (per month)	No. of cases
Low income group up to Rs. 150 ...	744 (74·4%)
Middle income group (Rs. 151-500) ...	249 (24·9%)
High income group (above Rs. 500) ...	7 (0·7%)

It will be seen that the majority of the cases belonged to low income group. But since over 80 per cent of all healthy employees was in that group, the higher incidence is only a reflexion of proportionate higher number of hands employed in that category of job, thus *per se* this does not signify a higher incidence in low income group. However, higher income group had a comparatively lower incidence.

Housing—Out of the total 1000 cases reported here, 223 were provided with quarters and 777 cases had private houses giving an incidence of 22·3 per cent and 77·7 per cent respectively. The relation between the number of bedrooms in each family *vis-a-vis* disease is shown in Table 4.

TABLE 4—SHOWING THE RELATIONSHIP BETWEEN THE HOUSING ACCOMMODATION AND THE NUMBER OF CASES

Accommodation in terms of No. of rooms	No. of cases
1 room only	258 (25·8%)
2 rooms	456 (45·6%)
3 rooms or more	286 (28·6%)

Symptomatology—The presenting symptoms are shown in Table 5.

TABLE 5—SHOWING PRESENTING SYMPTOMS

Symptom	No. of cases
Cough	866 (86·6%)
Fever	604 (60·4%)
Weakness	395 (39·5%)
Loss of weight	276 (27·6%)
Pain chest	261 (26·1%)
Haemoptysis	205 (20·5%)
Diarrhoea	83 (8·3%)
Cervical lymphadenitis	22 (2·2%)
Miscellaneous	17 (1·7%)
Asymptomatic	50 (5·0%)

Erythrocyte sedimentation rate—This was done by Westergren method and the 1st hour reading was taken (Table 6).

TABLE 6—SHOWING THE ERYTHYROCYTE SEDIMENTATION RATE OF THE CASES STUDIED

E.S.R. reading/1 hour	No. of cases
Below 20 mm.	112 (12·2%)
21—50 mm.	244 (24·4%)
51 mm. and upwards	599 (59·9%)
Not done	35 (0·35%)

E.S.R. above 20 in either sex is considered significant in association with other symptoms. However, some cases with fairly advanced degree of radiological disease had normal or low E.S.R. The initial height of E.S.R. had no correlation with the stage of radiological findings.

Sputum examination for acid-fast bacilli—As a routine, sputum was examined initially for three consecutive days for cases who had suspicious symtoms or had radiological evidence of disease by direct smear of 'spot' sample or by concentration method of 24 hours' collection for those who were admitted in the clinical hospital.

The results are presented in Table 7.

TABLE 7—SHOWING RESULTS OF SPUTUM EXAMINATION FOR A.F.B.

Sputum examination for A.F.B.	No. of cases
No. of cases examined	958 (95·8%)
No. of cases negative	733 (73·3%)
No. of cases positive	225 (22·5%)
No. of cases not examined ...	42 (0·42%)

On initial examination 22·5 per cent of cases was found positive and few cases were detected to be positive later in the course of the disease.

Radiology—Cases were categorised radiologically and the results are shown in Table 8.

TABLE 8—SHOWING RADIOLOGICAL CATEGORISATION OF THE CASES STUDIED

Category	No. of cases	No. sputum positive
(a) Minimal ...	379 (37·9%)	nil
(b) Moderately advanced	416 (41·6%)	88 (21·1%)
(c) Far advanced ...	205 (20·5%)	137 (66·8%)

The correlation between the degree of radiological lesion and sputum positivity amongst the cases studied was significant. In the 379 cases with minimal radiological lesion none were sputum positive whereas in the 416 cases with moderately advanced radiological lesion 88 cases (21·1 per cent) were positive and in the 205 cases with far advanced radiological lesion 137 cases (66·8 per cent) were positive. Thus, although about 33 per cent of cases of far advanced disease remained sputum negative, it is abundantly clear that diagnostic potentiality of sputum smear tests increases directly with the advanced degree of lesion.

Tuberculin test (*Mantoux technique*)—It is known that about 80 per cent of the population by the adult age is positive reactor. So this was not done as a routine and all the overt cases where the diagnosis was proved by earlier x-ray and positive sputum, were exempted. Mantoux test was done in 141 cases of children and doubtful cases of adults.

TABLE 9—SHOWING RESULTS OF MANTOUX TEST IN RELATION TO RADIOLOGICAL LESION IN 141 CASES

Radiological gradation	Mantoux results Negative, i.e., 5 mm. or less	 6-10 mm. (+)	 Above 10 mm. (++)
Minimal ...	4	51	54
Moderately advanced	7*	13	10
Far advanced ...	—	1	1
Total ...	11	65	65

* One was a case of miliary tuberculosis

Mortality—Out of 1000 cases 32 or 3·2 per cent died in 2 years.

Relationship of mortality and radiological lesion is shown in Table 10.

TABLE 10—SHOWING RELATIONSHIP OF MORTALITY TO RADIOLOGICAL LESION

Radiological lesion	Expired in 3 months	 6 months	 1 year	 2 years
Minimal ...	4†	—	—	—
Moderately advanced ...	1*	—	—	—
Far advanced ...	11	4	6	6

† Children below 3 years of age. * Diabetic

DISCUSSION

Tuberculosis is a global problem. Presently the estimated number of tuberculosis cases abounding in the world is to the tune of about 15 million (WHO, 1964) out of which about one-third may be in India; i.e., about 5 million cases. The Indian figure may be rather less than the actual prevalence because of several factors. Eighty-two per cent of the Indian population lives in villages and remote areas and a large number of cases occurring amongst them possibly escapes undetected, untreated and unreported due mainly to noncoverage of these areas with adequate medical aid. Besides, lack of organised data-collecting machinery, increase in the annual population at the rate of 40 per 1000 with progressive reduction of death rates due to better health measures are some of the important factors that would reasonably justify a higher figure. Benjamin (1957) has pointed out that malnutrition, inadequate housing, overcrowding, lack of education, rapid industrialisation with concomittant smoke nuisance are mainly responsible for this enormously high incidence both in rural and urban areas. Rightly it has been branded as killer number one in India (Bordia, 1964) and it is estimated that half a million people succumb to this disease every year. The most important single step to bring an effective halt to this process in foreseeable future is the early detection of cases and their appropriate treatment.

Symptomatology—It will be seen (Table 5) that the highest number of cases presented with cough (86·6 per cent) with or without expectoration. This is considered to be the most important common early manifestation particularly if it is persistent and does not respond to conventional therapy in about a month or so. Persistent cough should arouse the highest degree of suspicion and must be followed up by repeated sputum examination for A.F.B. and radiography of chest. Cough, fever and weakness constituted the most common triad of presenting symptoms in that order of priority. Another feature, rather obscure, is diarrhoea which was the presenting symptom in 8·3 per cent of the cases.

Persistent diarrhoea which fails to respond to usual therapy should be followed up for prolonged period and subjected to detailed investigation. Often a few such cases are branded as suffering from chronic amoebiasis in early stages with or without detecting entamoebae in stools. It is only after some months or years when the patient does not improve with routine treatment but complains of persistent chronic ill health and loss of weight that an x-ray chest taken reluctantly reveals the true nature of the pathology. Miscellaneous 17 cases comprised of: phlyctenular conjunctivitis—9, choroiditis—3, Eales's disease—1, ischiorectal abscess—3, pain abdomen—1. Another important feature is that 50 cases were asymptomatic. Of these asymptomatic cases, the majority were children. These cases were discovered by routine tuberculin test and x-ray chest for other ailments and in contacts. The diagnosis of this group of cases was particularly difficult and correctness is still questionable. 18 cases had associated diabetes mellitus detected simultaneously with the pulmonary lesion and two cases which presented with painless haematuria ultimately proved to be suffering from renal tuberculosis.

Sputum examination—The role of sputum examination for the detection of early cases of pulmonary tuberculosis is a very important one. In fact, in some of the centres treatment is offered only to those cases who are sputum-positive. In a developing economy like India with such a huge problem, bacteriological examination of sputum is the only suitable and practicable approach which can have nationwide application in mass case finding programme. And as a single economically suitable diagnostic tool this is the best. It has the advantages of a sure diagnosis, economy, easy technique and being possible in remote places. Besides sputum positivity signifies activity of the lesion and helps in the immediate institution of therapy in selected cases, thus removing the gap between the 'pill and the patient'. However, direct smear examination is not free from fallacies. The most important drawback is that the percentage of sputum positivity is rather low even in moderately advanced and advanced cases. Other drawbacks include lack of patients' co-operation in giving sputum, incorrect sample collecting technique and an element of human neglect and failure. If inadvertently an infectious case is left undetected and untreated, he becomes a dangerous and potential source of spread of infection to the community. Hence, to counter this flaw, radiological aid must be sought in all suspicious cases, should such facility be available.

Radiology—In our series we took the help of radiology in 100 per cent suspects and this proved quite fruitful because otherwise we would have probably missed a good deal of asymptomatic cases, cases without any auscultatory findings and sputum-negative cases. Wherever possible all cases must be x-rayed or at least a miniature film taken not only to detect the earliest asymptomatic disease but also to find out the extent and type of lesion and to facilitate future follow-up. Besides, we were taken by surprise to see few far advanced cases in apparently healthy adults who were admitted to hospital for the treatment of some other ailments and who were unaware of any previous contact. However, the disadvantages of radiology are: difficulty in correct interpretation, higher cost, and nonavailability in rural areas. Radiology, though indispensable for revealing the presence, extent and essential character of pulmonary tuberculosis, is by no means independently a definitive means of diagnosis. Therefore, it is thought that, subject to availability, combination of bacteriological and radiological approaches constitutes the ideal diagnostic tool at present available. This will have minimum chances of error.

Tuberculin test—Out of the eleven tuberculin non-reactors, two had definite features of activity, viz., fever, loss of weight, high E.S.R. besides the expanding lesion in serial x-rays. None of the cases had bacteriological positivity by direct sputum smear. But from the above evidences alone one is justified to accept them as proved cases of pulmonary tuberculosis with negative tuberculin reaction. There are many factors for tuberculin negativity even in the presence of infection (Rich, 1951 ; Web, 1956). Besides the individual skin reactivity factor, defective technique, impotent tuberculin, inadequate dosage, overwhelming infection and certain associated conditions are also known to interfere with the production of tuberculin sensitivity. These associated conditions are intercurrent infection, measles, influenza, cachectic states, late pregnancy, puerperium, hypothyroid states, administration of vitamin C, dehydration and early stage of pleural or peritoneal effusions, etc. Healing stage of a lesion may also give no reaction. In our series save for one case of miliary infection none of the above factors could be attributed to for a negative response. However, we would like to add that we did the test in 1 in 10,000 and 1 in 1000 dilutions only of old tuberculin and not up to 1 in 100 dilution (1 mg. dose). Therefore, the results are inconclusive. Web (1956) has reported that in a group of 479 children in age-group up to 12 years where Mantoux test was done, 15 showed negative tuberculin reaction in presence of active tuberculosis, out of which only 5 were acutely ill. Taylor *et al.* (1953) reported that out of 63 cases of tuberculous meningitis, 14 (22 per cent) were negative to 1 in 100 O.T. and of them 5 most seriously ill became Mantoux positive just before death. Again, one of our previously tuberculin nonreactor cases was observed to be converted into a reactor at a later date during febrile phase. It appears from the above evidence that active pulmonary tuberculosis is possible in the absence of tuberculin reaction. Thus the reasons for Mantoux negative state in the presence of active disease still remains incompletely understood. Besides the factors stated above this nonreaction may be due to depression of the R.E. system by the toxin or some sort of block mechanism or inadequate sensitisation of the system by minimal infection. More work on immunopathological aspect is called for to unfold this hitherto unexplicable phenomenon.

Summary and Conclusion

1000 cases of pulmonary tuberculosis have been reviewed. Majority of the cases was male, and the highest age incidence was between 21-40 years. Persistent cough and fever were the most common presenting features, whereas some had chronic diarrhoea. Although usually the E.S.R. was high in the majority of the cases, low E.S.R. was encountered in some.

Bacteriological examination of sputum by direct smear showed 22·5 per cent positive cases. Radiological gradations revealed 37·9 per cent minimal, 41·6 per cent moderately advanced and 20·5 per cent far advanced disease.

Definite diagnosis of pulmonary tuberculosis still poses a great practical problem. While detection of bacilli in the sputum establishes the diagnosis, indicates activity and dictates necessity for instituting therapy, yet sputum examination by direct smear method alone is of limited use and has many inherent fallacies. Therefore, as it stands today, combination of bacteriological and radiological approaches constitutes nearly ideal diagnostic means presently available with minimal chances of error.

Acknowledgment

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CLINICOPATHOLOGICAL CONFERENCE

A CASE OF ABSCESS IN A CIRRHOTIC LIVER RUPTURING INTO THE RIGHT SUBDIAPHRAGMATIC AND PERINEPHRIC SPACES AND INVOLVING THE RIGHT KIDNEY

Editors: Drs. M. M. S. Ahuja, N. C. Nayak and S. Bhargava, All-India Institute of Medical Sciences, New Delhi

Presentation of the Case

A shopkeeper, aged 50 years, was admitted to the hospital on 18-4-62 (Case no. 5/63). He died on 27-4-62.

HISTORY :

Initially, this patient complained of pain in the abdomen, low grade fever, loss of weight and cough with expectoration of 2 months' duration, and distention of abdomen for 1 month. Prior to this, he had been in good general health, and his illness started with an attack of dysentery which lasted for about a week. He had 6 to 8 semisolid motions a day with blood and mucus, and this was accompanied by griping pain in the abdomen. The blood was both dark and bright red in colour. With gradual improvement of his bowel condition, the patient noticed a continuous type of dull aching pain in the back of his right lower chest, and later all over the abdomen. This pain had no radiation. Along with this, there was irregular low grade fever which was more marked in the evening. There was also rapid loss of weight. Symptoms of cough with mucopurulent expectoration were also now present. About a month later, the patient noticed progressive distension of the abdomen which had become more marked over the last 15 days.

There was no past history of any serious illness. The patient came from a low-income group. He had been smoking 5 to 6 cigarettes a day for the last 12 years, and was not addicted to alcohol. There was no history of tuberculosis in the family.

EXAMINATION :

The patient was markedly emaciated and acutely ill with moderate degree of pallor and mild oedema of the feet. There was no jaundice, lymphadenopathy, or clubbing of the fingers. The tongue was coated and dry. The teeth and gums were unhealthy. His temperature was 98°F ; pulse 110 per minute and regular ; respiration 24 per minute, mostly thoracic ; and blood pressure

110/75 mm. Hg. Examination of the respiratory system showed diminished movements of both bases and some fullness and tenderness of the right lower intercostal spaces at the back. Signs of effusion were present on the right side of the chest. The abdomen was distended and shifting dullness was elicited. Deep palpation revealed a tenderness over right hypochondrium and upper part of the right lumbar region. There was no muscle guarding. There was no visible or any palpable mass. The liver was not palpable. The spleen was just palpable on deep inspiration.

Rectal examination revealed normal findings. Bilateral hydrocele was present. Examination of other systems was essentially normal.

INVESTIGATIONS :

Laboratory examinations at the time of admission revealed Hb.—10·2 g. per cent, W.B.C.—10,250 per c.mm., with polymorphs 70 per cent, lymphocytes 28 per cent, monocyte 1 per cent, eosinophil 1 per cent ; E.S.R. 51 mm./first hour (Westergren).

Total serum protein—6·4 g. per cent, albumin 2·0 g. per cent, globulin 4·4 g. per cent ; Alkaline phosphatase—13·6 K.A. units ; thymol turbidity—4 units ; $ZnSO_4$ turbidity—12 units ; serum bilirubin—1 mg. per cent ; blood urea—50 mg. per cent.

Urine and stool examinations showed no abnormality. Occult blood test of the stool was negative.

Chest x-ray revealed a raised right dome of the diaphragm ; and plain x-ray of the abdomen showed multiple air and fluid levels of the small bowel.

Examination of ascitic fluid showed protein content of 3·6 g., and microscopically numerous red cells and a few leucocytes were present. No malignant cells were seen.

Sputum examination was negative for acid-fast bacilli on two occasions.

TREATMENT :

Initial treatment was with streptomycin, INH (isonex) and multivitamin tablets. The patient did not show any response. Subsequently he was given chloromycetin. During his stay in the hospital the patient's condition gradually deteriorated and there was consistently severe pain throughout the abdomen. Repeat count showed W.B.C. 9,600/c.mm. with polymorphs 68 per cent, lymphocytes 30 per cent, monocytes 2 per cent. E.S.R. was 38 mm./first hour. On the 5th day of admission, the patient complained of difficulty in bowel movement and a sense of heaviness in the abdomen with pain. Gastric aspiration was carried out and intravenous fluids were administered. Two days later the patient developed a state of shock, and blood pressure dropped to 80/60 mm. Hg. Vasopressors and resuscitative drugs were given. The next day the patient was delirious and semicomatosed.

He died in the early hours of 27-4-62.

DISCUSSION

Dr. P. Upadhyaya[*]—This is the history of a 50-year-old male who was admitted to the hospital on 18-4-62 and died 9 days later in a state of sudden collapse. Two months prior to his admission, the patient was in a state of good health. He had then an attack of dysentery lasting for a week—6 to 8 semi-solid stools a day with blood and mucus and accompanied by symptoms of griping pain which make one think of amoebic dysentery. These bowel symptoms subsequently improved, to be followed by a dull aching pain in the right lower chest and then all over the abdomen. Along with this there was a low grade fever with rapid loss of weight. He also developed cough with mucopurulent expectoration, but the time interval between the onset of chest pain and the development of productive cough is not known.

Chest pain, low grade pyrexia and loss of weight probably gave the initial impression of tuberculosis to the treating physician and this explains why the case was put on antituberculosis treatment.

At this stage one has to answer the question, "Was the primary pathology in the chest or in the abdomen?". Before we look at the skiagrams, let us see how far the clinical picture is of help in this matter.

At the time of admission, the patient was markedly emaciated, acutely ill and looked toxic. His tongue was coated and dry; the pulse rate was 110/minute; temperature 98°F; respiration 24/min. and mainly thoracic. There were signs of pleural effusion in the right chest with fullness and tenderness of the right lower intercostal spaces. There was no cyanosis, nor any sign of respiratory distress.

The initial pathology, on the basis of the above findings, is more likely to be abdominal than thoracic. Pain started in the right lower chest and then spread to the whole abdomen. There was associated tenderness in the right hypochondrium and right lumbar regions. Later on distension of the abdomen was noted. These points favour a subdiaphragmatic lesion, which is probably inflammatory in origin, because of the associated pleural effusion. It is mentioned in the protocol that there was no abdominal rigidity, and that the respiration was mainly thoracic in nature. This denotes that the abdomen was rendered comparatively immobile, probably due to an inflammatory upper abdominal lesion which later on spread to the entire abdomen.

At this stage I request Prof. Gadekar to give us the x-ray findings.

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Prof. N. G. Gadekar—Skiagram of the chest shows a raised right dome of the diaphragm. Lung fields are clear and there are no other abnormal findings. X-rays of the abdomen of which two sets, taken in erect and lying down positions on different dates, are available and show distended upper jejunal loops with fluid levels.

Dr. Upadhyaya—Could you please let us know what is the nature and probably duration of this intestinal obstruction?

Prof. Gadekar—These changes appear to be due to paralytic ileus. The second picture shows some thickening of the wall of the intestines indicating that the process is a few days old and fibrinous exudate has given rise to his thickening.

Dr. Upadhyaya—Is it possible to tell about the size of the liver? Was any screening of the chest done on this case?

Prof. Gadekar—Answer to both the questions is 'no'.

Dr. Upadhyaya—Could the small opaque shadows in left 11th intercotal space be due to pancreatic calculi?

Prof. Gadekar—'No'. I think these are renal calculi.

Dr. Upadhyaya—After these findings, I can be more confident in stating that we are dealing with a subdiaphragmatic pathology which is inflammatory in origin. This has resulted in paralytic ileus with generalised abdominal pain and distension. The patient became somewhat constipated, though he did not have any vomiting. During the nine days of his stay, the abdominal symptoms became progressively worse.

There are three things to be explained; viz., (1) the nature of this subdiaphragmatic pathology, (2) the cause of abdominal pain and distension, and (3) the nature of the terminal event which resulted in a state of peripheral collapse and ultimately death of this patient.

Usual causes of a subdiaphragmatic lesion of this nature would be a subphrenic abscess, a liver abscess, infected hydatid cyst or a rapidly growing malignant tumour of the liver. There are no clues in the history of this case to suggest appendicitis, peptic ulcer, gall bladder disease or disease of the right kidney, conditions which can usually result in an abscess formation below the right diaphragm. Malignancy of the liver, primary or secondary, can be easily excluded because of the sudden onset of symptoms suggestive of a primary tumour in the gastro-intestinal tract. The test for occult blood in the stools was negative. There was no evidence of hydatid disease of the liver. There was no history of urticaria, nor was there any eosinophilia. Liver abscess, therefore, remains the most likely possibility to account for the clinical picture of this case. There is history of amoebic dysentery preceding this illness. The low grade pyrexia and progressive loss of weight are quite characteristic of amoebic abscess of the liver. Absence of amoebae or cysts in the stool does not completely exclude this diagnosis since single stool examination may be negative in more than 50 per cent of cases of amoebiasis. Leucocyte count is not usually very high and polymorphonuclear cells are up to 75 per cent. In this case total leucocyte count was 10,020/c.mm. with 70 per cent as polymorphonuclear.

Raised serum bilirubin (1 mg. per cent) and modest rise in serum alkaline phosphatase also point to an intrahepatic lesion which has caused cholestasis. A reversed albumin-globulin ratio indicates a chronic liver pathology. It is known that a liver abscess may grow to a considerable size before it clinically manifest itself. Perhaps only when there is involvement of the capsule and associated perihepatitis that symptoms of pain and local inflammatory reaction make themselves evident.

Abdominal pain was in the lower chest, right hypochondrium and lumbar regions—there being no radiation to the right shoulder. This suggests that the lateral diaphragmatic surface and inferior surface of the liver were involved in this disease process.

We have now to explain the pathogenesis of ascites and oedema of the feet in this case. The ascitic fluid was an exudate high in protein content with numerous red cells and a few leucocytes. The distension of the abdomen was initially probably due to this fluid. The later increase was as a result of ileus of the small bowel. There was no prominence of neck veins or other evidence of congestive heart failure. There was no evidence to suggest renal disease.

As to the question, how a liver abscess can present this abdominal condition, some possible suggestions are:

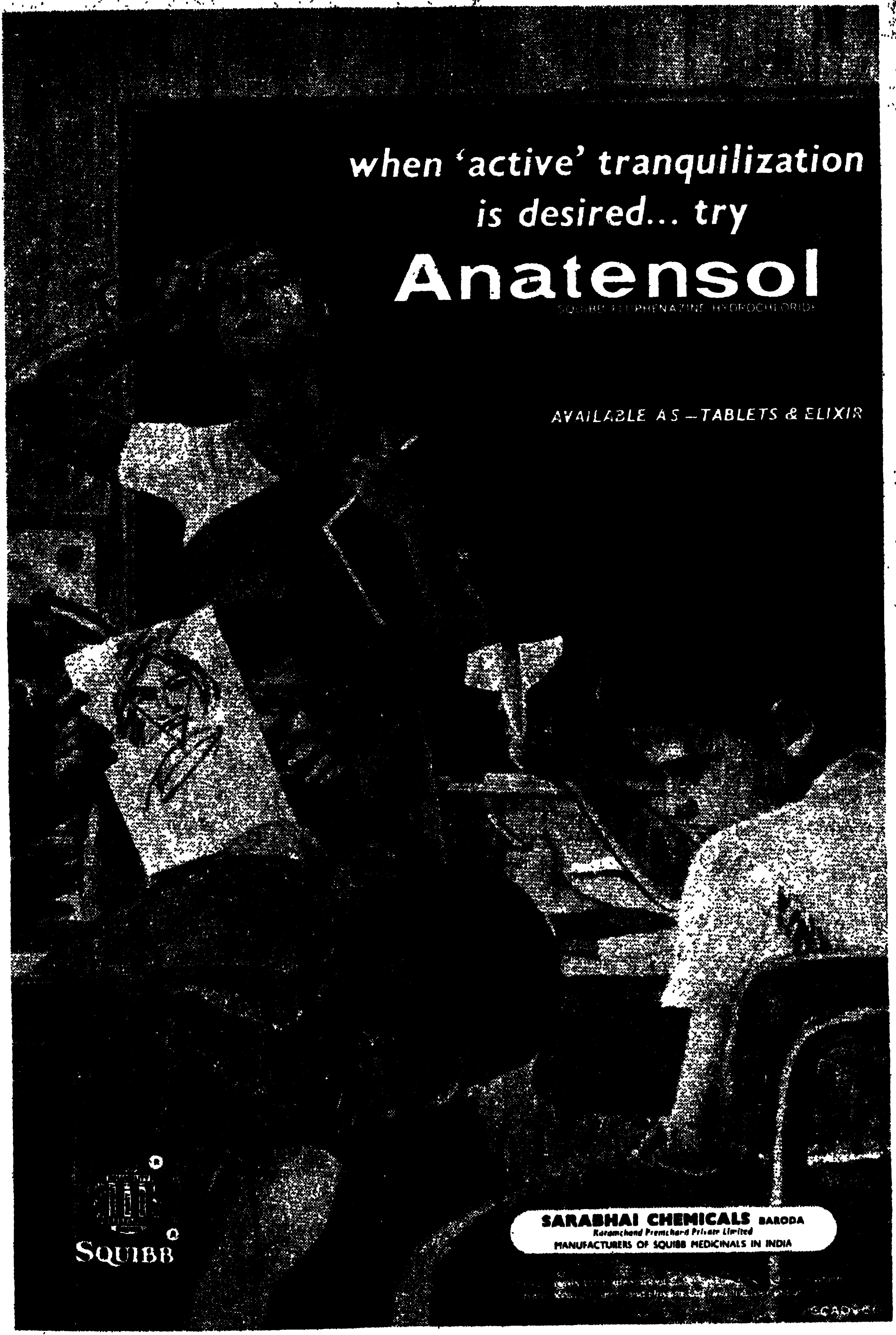
1. Perihepatitis, producing localised peritonitis.
2. Leakage from the abscess on the inferior surface of liver, giving rise to peritonitis.
3. Budd-Chiari syndrome.
4. Thrombosis of the portal vein.
5. Peritonitis due to a chronic intestinal ulcer eroding through the muscular coat.

Hypoalbuminaemia certainly contributed to the collection of the fluid. Oedema of the feet developed later and was due to increased mechanical pressure inside the abdomen.

Thrombosis of the portal vein and leakage from an amoebic intestinal ulcer are rare happenings. Initially this case of liver abscess probably had perihepatitis, and paralytic ileus was due to localised upper abdominal peritonitis, which was due to a 'leak' from the inferior surface of the liver.

There remains one condition which I can neither strongly rule out nor competently justify to explain the clinical picture of this patient. This is pancreatitis. The clinical picture of pancreatitis can be very variable. The intensity and site of pain and the severity of symptoms differ from case to case. It can give rise to pain in the right hypochondrium in 20 per cent cases. There can as well be subphrenic collection and exudate in peritoneal cavity and also paralytic ileus in this state. Shock may not be the presenting symptom, but sometimes appears later, following delayed erosion of a vessel by enzymatic digestion. However, there is no history suggesting gall bladder disease, no episode of jaundice in this case. Transient glycosuria or raised serum amylase was not noted at any stage. I agree, all of these may be absent or negative in pancreatitis but in that event the diagnosis remains purely on guess work.

To summarise, I would say this case had liver abscess, probably amoebic. This abscess most probably was situated near the inferior surface of the right lobe



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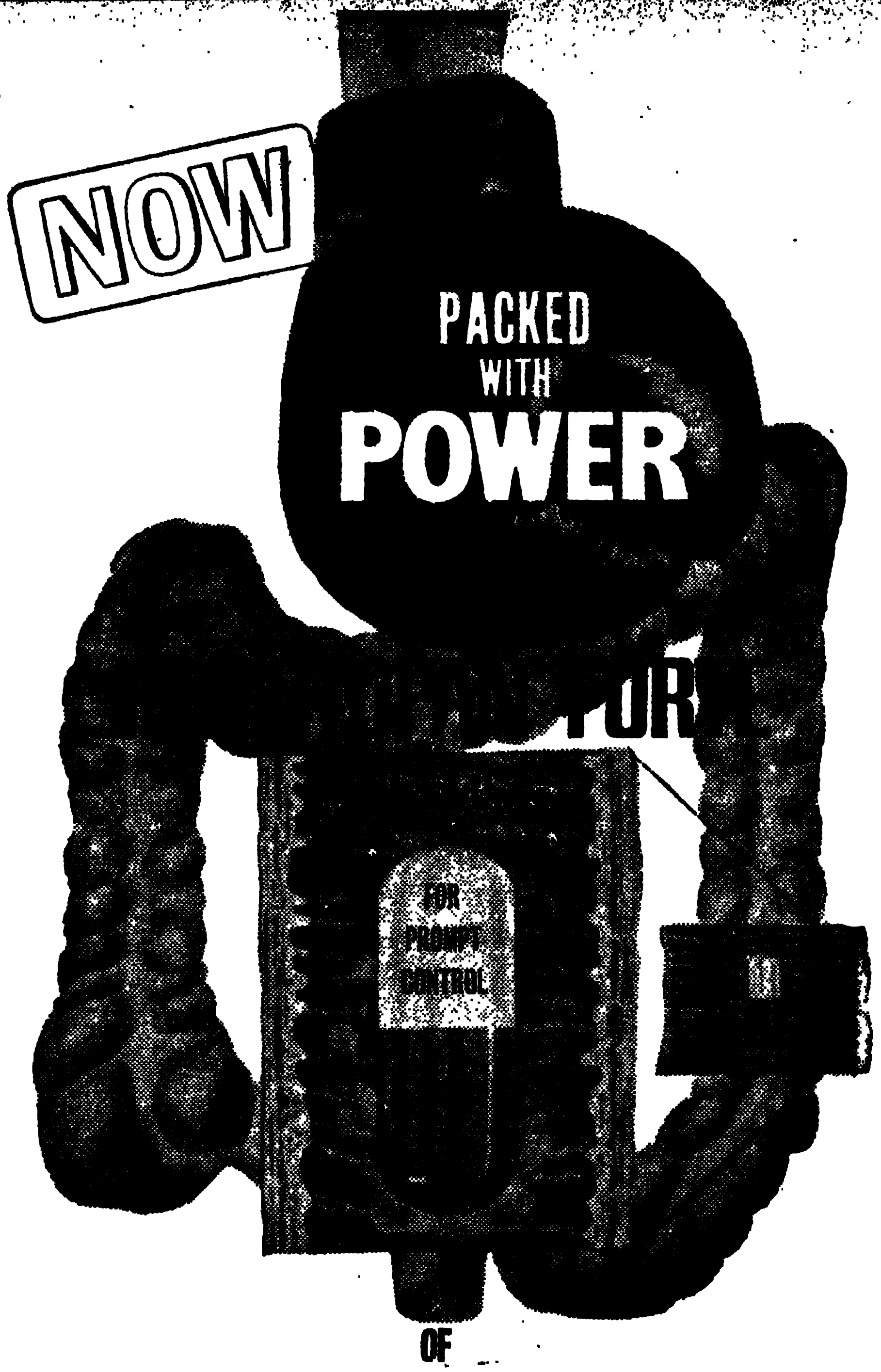

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with associated perihepatitis, localised peritonitis and paralytic ileus later due to a leakage in the peritoneal cavity, there was generalised peritonitis.

Dr. S. K. Nair—I would like to ask Dr. Upadhyaya regarding the possibility of bouts of mesenteric thrombi, occurring initially in the minor branches and the last terminal episode being a massive one.

Dr. Upadhyaya—There is no history of recurrent episodes of abdominal pain to fit in with Dr. Nair's speculation. Then what is the cause of such mesenteric thrombi? How can we explain the subdiaphragmatic pathology? It is difficult to correlate the two.

Dr. I. K. Dhawan—I feel that the second x-ray of the abdomen shows evidence of distended loop large gut. Would Dr. Gadekar please comment?

Dr. Gadekar—The shadow is centrally placed and the transverse linear markings indicate that it is in the small gut. One can easily exclude this being distended large gut.

Dr. Dhawan—What makes you say that it is 'adynamic' obstruction in this case?

Dr. Gadekar—One cannot see definite dilatation of the entire gut, it is only present in one loop, with thickening of the wall of the dilated loop. Moreover, the patient did not have much vomiting. It is, therefore, more likely to be a 'adynamic' state here.

Dr. A. Prakash—I feel that certain unusual features are present in this case. There was no enlargement of the liver and in addition there was no associated hepatic tenderness. There is a possibility of pyelophlebitis here.

Dr. Upadhyaya—Hepatic tenderness was present in this case on deep palpation as indicated in the protocol. The liver enlargement possibly could not be felt because of this being mostly upwards, as can occur in many cases of liver abcess. In pyelophlebitis the process is indicated by some degree of septicaemia, patients having recurrent bouts of high temperature almost invariably with rigors.

Dr. Prakash—A response to septicaemic process may be absent if the patient is emaciated.

Dr. Upadhyaya—This patient was in good health two months before the onset of his illness. We cannot dissociate his emaciation from his illness. I think emaciation was due to a rather chronic liver disease.

Dr. J. R. Talwar—Pancreatitis should have been considered as the first possibility in this case. There is history of an acute episode and in about 9 days the patient has succumbed. There is calcification in the region of the tail of the pancreas. This calcification can be seen in patients with chronic pancreatitis. Localised paralytic ileus is known to occur in patients with pancreatitis as well, there is pleural effusion in such instances.

Dr. Upadhyaya—I did mention the possibility of pancreatitis, yet I would not give it the first preference. You would agree that fulminating pancreatitis does not present like this. A mild acute pancreatitis should not have taken two months. The calcification in pancreatitis is usually near the head. In this case it is in the left 11th intercostal space and as Prof. Gadekar has pointed out, opacities are possibly renal calculi. The ascitic fluid usually collects in the lesser sac and would then raise the left dome of diaphragm.

Dr. Gadekar—Pleural effusion seen in association with pancreatitis is often right-sided.

Dr. K. C. Kandhari—Dr. Upadhyaya, the stool examination was negative for *E. histolytica*.

Dr. Upadhyaya—Stool examination particularly if not repeatedly done can be negative though the patient can suffer from amoebiasis.

Dr. Kandhari—However, interval of 2 months is rather unusual for development of hepatitis. Would you like to consider the possibility of hydatid disease?

Dr. Upadhyaya—The severity of disease depends on so many factors, e.g., virulence of the organism and immunity of the host. We cannot say the patient might have had amoebic hepatitis even before his dysentery. Every case of liver abscess does not give history of dysentery. Hydatid infestation here will not explain the symptoms of dysentery. Moreover, there was no liver swelling, no eosinophilia and Cassoni's test was not done.

Dr. M. M. S. Ahuja—I would like some one to support me to suggest the possibility of a malignant process, perhaps in the small gut. At some stage there has been a leakage through a small gut perforation and then the subsequent subdiaphragmatic pathology.

*Dr. H. D. Tandon**—Autopsy findings: The peritoneal cavity contained about 3 litres of fluid, most of it was serosanguinous but there was some loculated purulent and foul-smelling pus. Parietal and visceral peritoneum were covered with a thick fibrinopurulent exudate which was getting organised in places resulting in easily detachable adhesions. The large intestine was particularly markedly distended and the wall thinned out The main lesion was in the liver which was shrunken on account of a diffuse uniform cirrhotic change (Fig. 1). The inferior surface of the liver was adherent to the upper pole of the right kidney by thick fibrous adhesions and a very extensive purulent exudation. On sectioning the liver, two abscess cavities were seen in the right lobe. One of these, which appeared to be of some duration, was located just adjacent to the diaphragmatic surface (Fig. 2).

This had a thick fibrous wall and was distended with a viscid creamy yellow pus. The second abscess, apparently a more recent one, was located deeper down and had burst through the inferior surface of the liver into the right perinephric region where it was partly bounded by the upper pole of the right kidney and the second part of the duodenum. This abscess was obviously in free communication with the peritoneal cavity. The superior pole of the right kidney was necrotic forming part of the wall of the abscess (Fig. 2).

Microscopically one could see the abscess extending into the renal tissue from outside (Fig. 3) and giving rise to a necrotic local inflammation or abscess (Fig. 4). The remainder of the kidney showed multiple, scattered,

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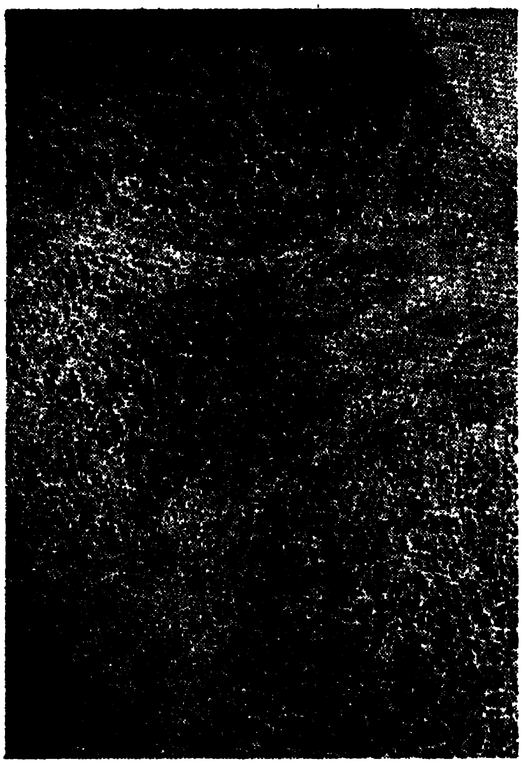

FIG. 1—POSTNECROTIC CIRRHOSIS OF THE LIVER SHOWING PSEUDOLOBULES AND FIBROUS SCARS (H. & E. × 20)

minute, yellow abscesses, chiefly in the cortical region. Culture of the pus yielded *Streptococcus faecalis* and *Pseudomonas pyocyaneus*.

The left kidney showed an interesting incidental finding. The cortex of the upper pole of the kidney contained a tense distended large cyst containing multiple small calculi. There was no demonstrable communication with the pelvis. Besides the above, the thoracic cavity also showed fibrinous exudate, particularly, in the region of the diaphragm, there were fibrous adhesions and the lower lobe showed patchy bronchopneumonic consolidation which was confirmed microscopically (Fig. 5).

The lower part of the ileum and the colon showed occasional mucosal haemmorhages but no distinct ulceration.

The final anatomic diagnosis was:

1. Pyogenic abscesses in the right lobe of the liver with rupture into the peritoneal cavity.

2. Acute and organising peritonitis with intestinal adhesions.

3. Perinephric abscess, with exogenous acute right-side spread. Hydronephrotic calyx in the upper pole of the left kidney with multiple calculi.

4. Postnecrotic cirrhosis of the liver.

5. Bronchopneumonia, acute, bilateral.

Dr. Ahuja—I would like your comments regarding the state of the portal veins and about any evidence of inflammatory exudate along the portal vein radicles.

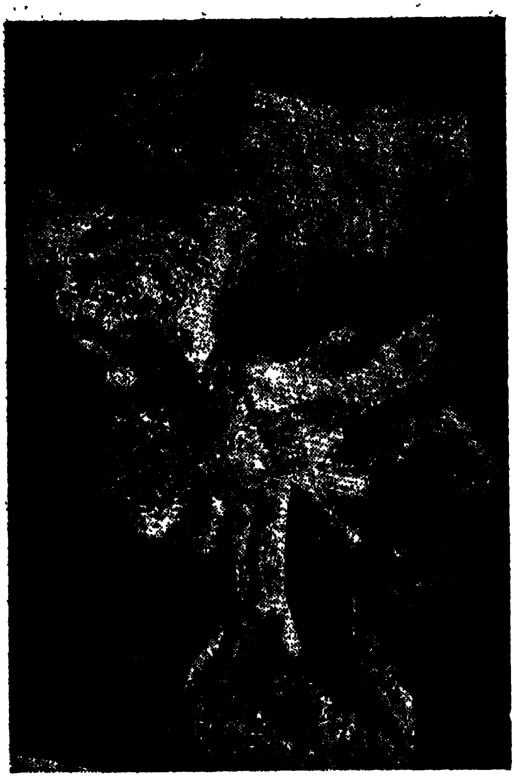

FIG. 2—SHOWING LIVER ABSCESS RUPTURING INTO RIGHT DIAPHRAGMATIC AND PERINEPHRIC SPACES AND INVOLVING THE UPPER HALF OF THE RIGHT KIDNEY. THE LIVER IS CIRRHOTIC

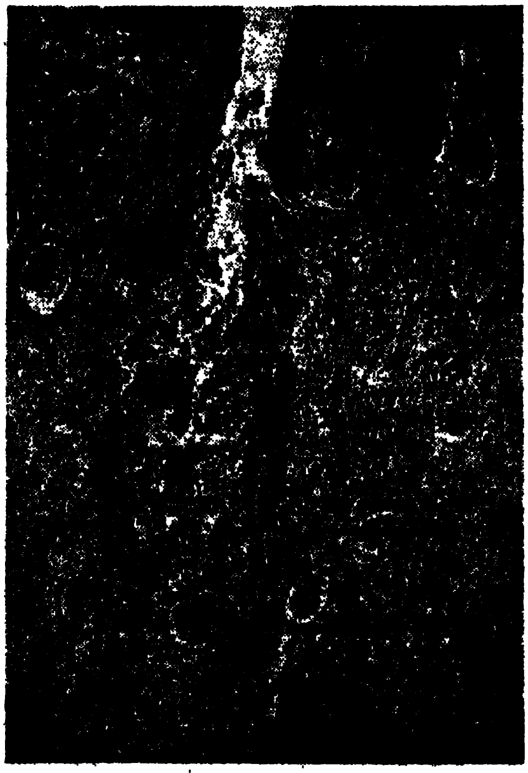

FIG. 3—MICROSECTION OF THE RIGHT KIDNEY SHOWING ABSCESS INVADING THE RENAL TISSUE (H. & E. × 20)

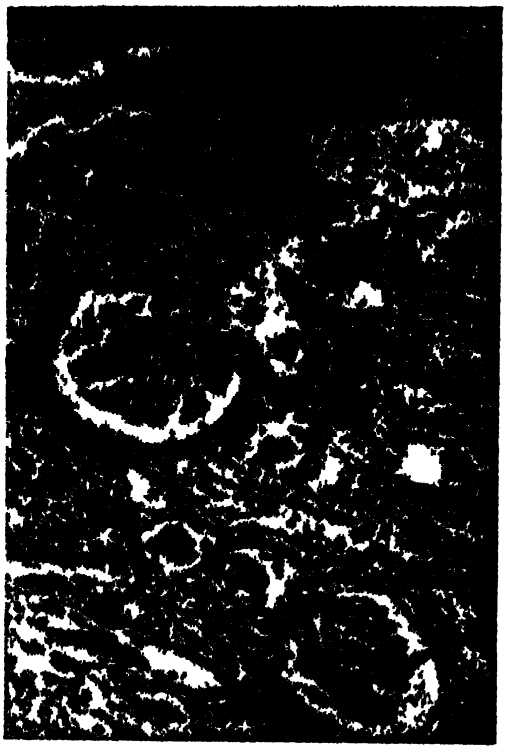

FIG 4—SHOWING ABSCESS IN THE KIDNEY (H & E ×80)

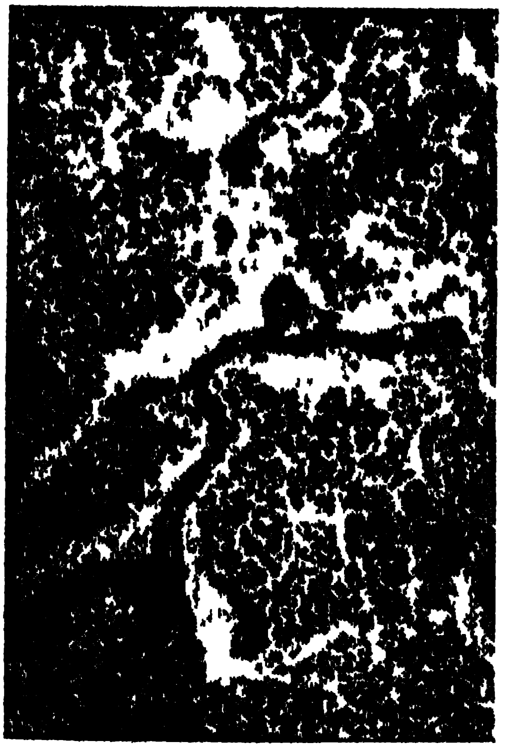

FIG 5—SHOWING AN AREA OF BRONCHOPNEUMONIA IN THE LUNG (H & E ×80)

Dr. Tandon—There was no significant pathological change in either the main portal vein or its smaller tributaries The entire gut was free from any growth or ulceration

Dr Dhawan—What was the state of the ileocaecal valve?

Dr Tandon—This was examined carefully, and nothing of pathological significance was seen.

Dr Upadhyaya—Was the entire colon studied to see evidence of amoebiasis?

Dr. Tandon—Yes, no ulcers could be found

Dr Kandhari—Based on pure histopathological findings, do you state that these are not amoebic abscesses?

Dr Tandon—Yes I would have liked to see vegetative forms of amoeba to state categorically that the diagnosis was amoebiasis Even otherwise, there was no suggestion of any amoebic ulceration, grossly

It is obvious that among the list of lesions that the patient had, the most important one, as suspected by Dr Upadhyaya, was abscesses in the liver which had ruptured into the peritoneal cavity, causing severe acute peritonitis It seems that the rupture had been of the nature of a gradual leak of some duration, as evidence of organisation was seen in some places

It is tempting to consider an abscess in the liver preceded by dysentery as of amoebic origin even if no amoebae were seen in the stool However, we feel certain that this case did not have amoebic infection of the colon In the absence of this obviously recognisable aetiological agent of liver abscess, one has to speculate on its causation The abscesses were definitely pyogenic, as is evident from the organisms grown from the culture

From some of the reviews on this subject (Sherlock, 1963, Ogden *et al*, 1961) it appears that in as many as 50 to 58 per cent of such abscesses no predisposing cause had been found, and they have been labelled "cryptogenic" Usually, they are said to result from an ascending infection along the bile ducts, e g, suppurative cholangitis or pyelophlebitis of the portal vein from an infected colon or appendix, etc The latter possibility seems plausible in this case, as the nature of organisms grown from the abscesses suggests a possible origin from the colon The intestinal mucosa could not be properly studied microscopically on account of autolysis

What probably was another peculiar feature in this case as Dr Upadhyaya has discussed, was the fact that the liver was not palpable at any stage This seems to be a coincidence, as the liver was obviously cirrhotic and had thus shrunken in size There appears some evidence of portal hypertension as evidenced by splenic enlargement.

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CASE NOTES

CONGENITAL ABSENCE OF THE GALL BLADDER

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Though diseases of the gall bladder are fairly common, congenital absence of the gall bladder is very rare. Here is a report of a case.

CASE REPORT

Mrs. I.T. was first seen in the outpatients department at Worcester Royal Infirmary (U.K.) in 1950, at the age of 35 years, with complaint of upper abdominal pain of five years' duration and indigestion for many years. The epigastric pain was worse when she felt hungry. She used to get nausea at times. Her bowels were free and regular.

On examination, she was found to be thin. Her ptotic transverse colon was palpable. A tender mobile mass, felt around the umbilicus, was thought to be the pylorus. Barium meal and fractional test meal showed no evidence of gastric or duodenal ulcer. Barium enema examination, made at a later date, showed no organic lesion of the large intestine.

The patient was seen again in the outpatients department on 5-12-61. This time she complained of upper abdominal pain and vomiting since the previous week. She also gave history of morning diarrhoea (three times) for several months.

On examination, there was found slight tenderness in the epigastrium and the right hypochondrium. Serum bilirubin and amylase were within normal limits.

A cholecystography was performed and was reported on as follows:

"Cholecystography shows no cholecystic concentration. The biliary tract is pathological. There are various opaque bodies, one could possibly be a stone in the low lying gall bladder" (Fig. 1).

In spite of such an adverse x-ray report it was decided to treat the patient conservatively, and she was put on a fat-free diet and taka-diastase.

In July, 1963, the patient was again sent by her physician to the outpatients department complaining of having had six attacks of right upper abdominal pain during the previous eighteen months. The attacks apparently started in the upper abdomen and were followed by vomiting. She was tender all over the right side of the abdomen. Serum bilirubin and diastase were within normal limits on this occasion. With the history and the past evidence, an exploration of the abdomen, with a view to cholecystectomy, was now advised.

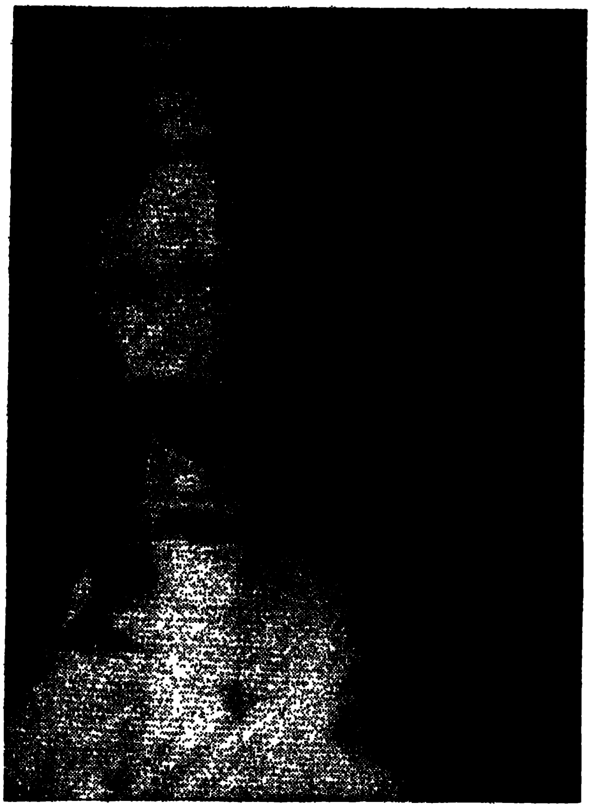

FIG. 1—SKIAGRAM (LATERAL VIEW CHOLECYSTOGRAPHY) SHOWING NON-FUNCTIONING GALL BLADDER

She was admitted to hospital on 30-9-63. Since her last attendance she had had a few more attacks of abdominal pain and vomiting. She also gave a history of cystitis.

On examination after admission, she was found tender all over the right side of the abdomen. An intravenous pyelogram showed normal gross function and anatomy of the upper urinary tract. *E. coli* and *Streptococcus faecalis* were cultured from the urine.

Exploratory laparotomy—On 3-10-63 the abdomen was explored through a right paramedian incision. There were no organic lesions in the stomach and duodenum, or hiatus hernia. The gastro-intestinal tract was normal. The gall bladder was found to be absent. There was a shallow groove in the undersurface of the liver at the site of the gall bladder fossa. The extrahepatic biliary tract was dissected. The biliary system consisted of the common duct, a slightly dilated right hepatic duct and apparently a fairly normal left hepatic duct. There was no evidence of the cystic artery. All accessible surfaces of the liver were explored without finding the gall bladder at an abnormal site. No stone was found in the biliary duct system. The wound was closed after routine appendicectomy.

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* Formerly at Worcester Royal Infirmary.

Further investigation—An intravenous cholangiogram was done on 15-10-63 to exclude the possibility of intrahepatic gall bladder. This showed excellent concentration of the opaque medium in the biliary tract. The right hepatic duct was a little dilated but there was no evidence of any stone or obstruction and the common duct appeared to be quite normal. There was slight tortuosity of the lower part of the dilated right duct but no cystic duct or stump of the gall bladder was seen (Fig. 2).

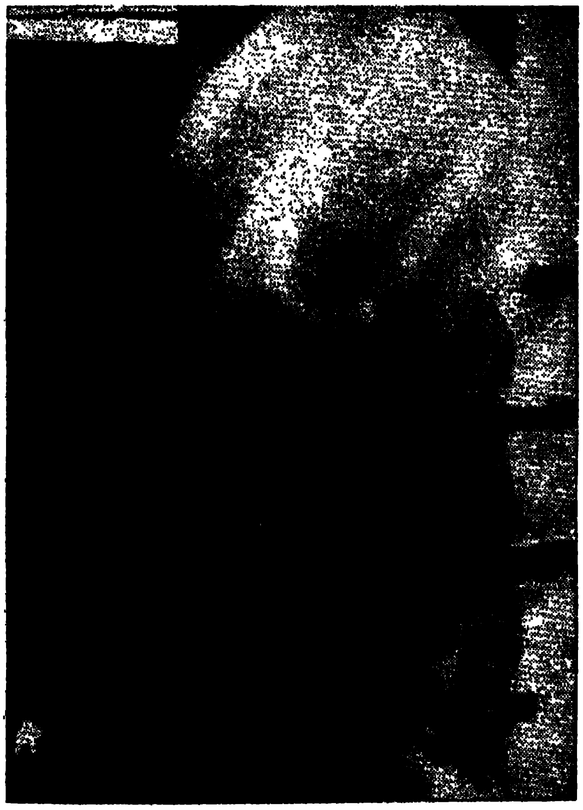

FIG. 2—SKIAGRAM (INTRAVENOUS CHOLANGIOGRAM) SHOWING EXCELLENT CONCENTRATION OF THE OPAQUE MEDIUM IN THE BILIARY TRACT. THERE WAS NO EVIDENCE OF ANY STONE OR OBSTRUCTION. THERE WAS NO CYSTIC DUCT OR STUMP OF GALL BLADDER

Postoperative recovery was uneventful. The patient did not complain of the previous symptoms during the rest of her stay in hospital. The cause of her symptoms remained obscure. Although a spastic sphincter of Oddi could explain them, this however was not likely in the absence of dilatation of the common bile duct.

COMMENTS

Congenital anomalies are frequently encountered in biliary tract surgery. So common is some departure from the average that it is hardly possible to describe a normal arrangement of arteries and ducts, though the ducts are more constant than the arteries. Various types of anomalies of the gall bladder may be present, but congenital absence of gall bladder had been reported in the literature by the end of 1960. The true incidence of this condition is not known. Probably a close approximation to the true occurrence of the condition in the overall population is 0·042 per cent, as given by Malmstrom. It may occur without any other variation from the normal in the remaining extrabiliary system.

The position of the gall bladder is not constant. It is a pear-shaped sac usually lodged in a fossa on the undersurface of the right lobe of the liver, extending from near the right extremity of the porta hepatis to the inferior border of the liver. It may be hidden inside the liver or may be malpositioned elsewhere.

When the gall bladder is absent, the gall bladder fossa is completely absent also, but it may be associated with a shallow groove at its usual site, as in the present case. Like other biliary tract diseases, this condition is more common in females—being about 2 to 3 times as common as in males. The age of the patients when this anomaly is discovered at operation or at autopsy varies from a few days to 65 years, with an average of about 35 years. It may be associated with extrahepatic duct occlusion, and in such cases the patient dies of jaundice some months after birth.

Absence of the gall bladder is rarely associated with any compensatory dilatation of the hepatic or the common bile ducts, unless complicated with gall stones.

Congenital absence of the gall bladder and cystic duct is practically an impossible diagnosis to make prior to laparotomy. There are no characteristic signs or symptoms that differentiate it from more common biliary tract diseases. The adults commonly present with symptoms of chronic cholecystitis.

Radiologically alone, it is also impossible to differentiate it from a non-functioning gall bladder. The antemortum diagnosis of congenital absence of gall bladder depends on the findings at exploratory laparotomy and direct cholangiography. It is difficult to be sure, if one fails to find the gall bladder at operation, whether it is absent or present elsewhere. Cholangiography is important to establish the diagnosis of agenesis and to exclude the possibility of an intrahepatic gall bladder. Negative findings at laparotomy and cholangiography for all practical purposes exclude a non-functioning intrahepatic gall bladder and establish the diagnosis. Where facilities are available, an operative cholangiography is preferable to an intravenous one, as the extrabiliary tract is better outlined.

SUMMARY

A case of congenital absence of the gall bladder is reported. Pre-operative diagnosis is impossible and was not made in this case.

ACKNOWLEDGMENT

I am indebted to Mr. G. H. Marshall for his kind permission to publish details of this patient who was under his care and for his advice in preparing the paper.

SCLERODERMA IN A BOY OF NINE

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Scleroderma was first described by Carlo Curzio in 1753. A hundred and twelve years later Gintrac used the term 'sclerodermie' and this was adopted by Harteloup in 1865 and gradually became accepted. In 1945 Goetz, cited by Rodnan and Banedak (1962), proposed the name 'Progressive systemic sclerosis' indicating that scleroderma is only the cutaneous manifestation of a truly generalised disease.

Scleroderma is characterised by circumscribed or diffuse boardlike hardening and immobility of the skin, the sites of predilection being the limbs, face and upper half of the body. The collagenous tissue becomes swollen hypertrophied, sometimes calcified and eventually atrophied with secondary atrophy of the epidermis and its accessory structures. It is rarely seen in children, the majority of cases occurring in adult life. The disease in children is 'scleredema' rather than true scleroderma.

The abnormal vasoconstriction with diffuse scleroderma was documented for the first time by Raynaud himself in 1865, and Monroe in 1899 reviewed 180 cases of Raynaud's disease and found "more or less marked tendency to scleroderma" and observed that the sclerotic changes might begin about the same time as the vasomotor complaints or years later.

The disease also affects the deeper structures such as the synovium, the lungs (Murphy *et al,* 1941), heart (Brock, 1934; Weiss *et al.,* 1943), alimentary tract (Abrams *et al.,* 1954; Bevans, 1945; Heinz *et al.,* 1963; Hoskins and Norris, 1962; Olsen *et al.,* 1945; Treacy *et al.,* 1963), and kidney (Moore and Sheehan, 1952; Talbott *et al.,* 1939).

The case reported here is one of scleroderma occurring in a child who presented with ulceration of the finger tips, diffuse involvement of the skin and some evidence of involvement of the alimentary tract.

CASE REPORT

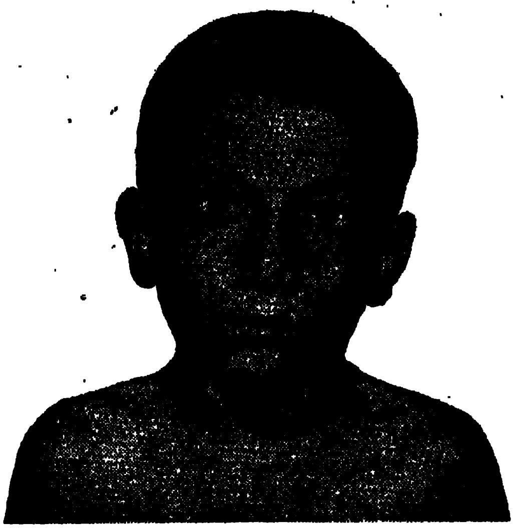

FIG. 1—SHOWING EXPRESSIONLESS MASK-LIKE FACE AND TAUT SKIN OVER THE FACE AND FOREHEAD

J., a Muslim boy, aged nine years, came to the outpatients department of the Medical College Hospitals, Calcutta, on 22-7-64 with complaints of painful ulcers over the tips of all the fingers since the last 3 years ; these ulcers could not be healed in spite of treatment. He also complained of progressive weakness and occasional low grade fever lasting two to three days since the last 2 years. There was no history of arthralgia.

On examination the patient was found to be a dark complexioned young boy with a height of 4'-11" and weight of 50 lb. He had bright eyes, a thin rather pointed nose, thin lips and an expressionless mask-like face, the taut skin over the face and forehead smoothing out the lines of expression (Fig.1).

There was no cyanosis, anaemia or jaundice. Pulse was 80/min, regular, equal in all the four limbs. Respiration—18/min, regular. Blood pres-

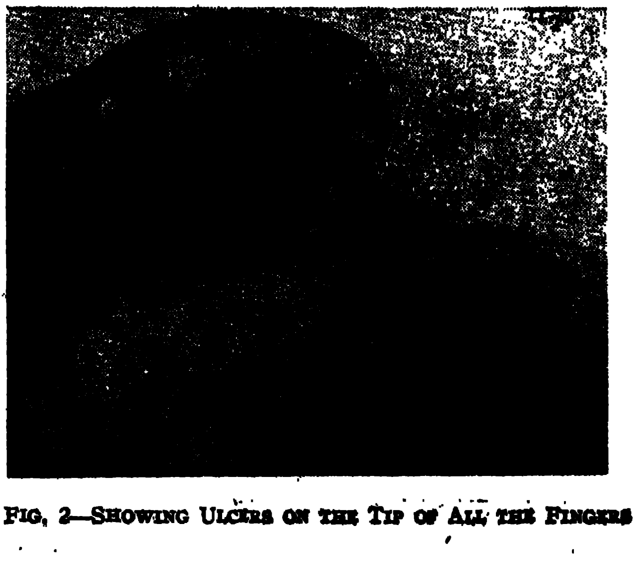

FIG. 2—SHOWING ULCERS ON THE TIP OF ALL THE FINGERS

sure was 100/60 mm.Hg. Systemic examination revealed a liver palpable 1" below the costal margin, firm, smooth, not tender. No neurological or cardiovascular disturbances were detected clinically. The skin over the face, upper limbs and trunk was thick, taut and shiny with sparse hairs. The skin over the face and upper part of trunk and the upper limbs appeared to be slightly more pigmented than in the rest of the body. Although free from the deeper structures, the skin could nowhere be pinched up.

On the tips of all the fingers were small ulcers 2 to 3 mm. in diameter with irregular margin, variable depth and dry sclerotic floor (Fig. 2). There was no clubbing of finger nails. The hands and fingers were moist, cool and stiff with limitation of flexion at the interphalangeal joints. The skin over the dorsum of hand, knuckles and finger was smooth, shiny, tense and slightly hyperpigmented.

Investigations—Routine analysis of stool and urine revealed no abnormality. Haemogram showed: Hb.—12·5 g. per cent; P.C.V.—40 per cent; leucocyte count 7000/c.mm., with polymorphs 68 per cent, lymphocytes 26 per cent, monocytes 2 per cent, eosinophils 4 per cent. E.S.R.—30 mm./1st. hour (Westergren). Blood urea—23 mg. per cent. Fasting blood sugar—76 mg. per cent. Blood creatinine—1 mg. per cent. Total proteins—10 g. per cent, with albumin 4·8 g. per cent and globulin 5·2 g. per cent. Lupus erythematosus test was persistently negative. Fractional test meal revealed a normal free and total acidity. Hines cold pressor test. B.P. (basal)—100/60 mm. Hg. Maximum rise observed was 150/110 mm. Hg.

Straight x-ray of the chest showed no abnormality. Barium-swallow fluoroscopy and x-ray (Fig. 3) revealed a rigid tube-like oesophagus with diminished motility resulting in delay in the passage of barium in the supine posture, and the reverse in the erect position. There was also delay in transit with accompanying abnormal motility in the small intestine. The large gut showed no abnormality.

Skin biopsy (Fig. 4) revealed degeneration of the collagenous tissues with scanty hair follicles, sweat and sebaceous glands. The blood vessels in the dermis were found to be narrow with perivascular infiltration with lymphocytes which, however, were not conspicuous, possibly due to the fact that the patient had already received prednisolone for one week.

Liver and kidney biopsies showed normal liver and kidney tissues respectively.

Lung function tests showed a diminished vital capacity (1530 ml.).

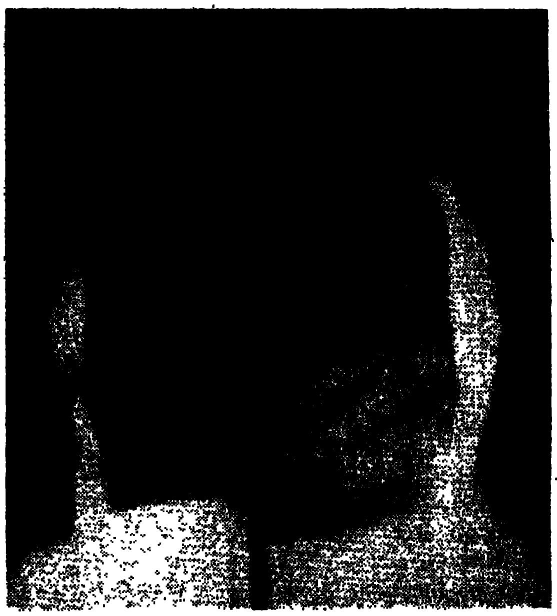

FIG. 3—BARIUM SWALLOW X-RAY AT THE END OF 5 MINUTES SHOWING RIGID TUBE-LIKE OESOPHAGUS WITH DIMINISHED MOTILITY

FIG. 4—SECTION OF SKIN SHOWING DEGENERATION OF COLLAGENOUS TISSUES WITH SCANTY HAIR FOLLICLES, SWEAT AND SEBACEOUS GLANDS

E.C.G. revealed sinus arrhythmia, normal axis, intermediate lie, right ventricular hypertrophy with strain and left ventricular hypertrophy.

Treatment—After admission the patient was given a course of prednisolone 20 mg. daily for 3 months, after which the case was reviewed.

After 3 months all the painful ulcers had disappeared except those on the tips of the forefingers on both the hands, where depressed scars persisted, but they were not as painful as they had been before. Plasma proteins: Total proteins—7·55 g. per cent; albumin—3·68 g. per cent; globulin—3·87 g. per cent. E.S.R.—16 mm./hr. (Westergren). L.E. test—negative.

1½ months after cessation of therapy, total proteins—9 g. per cent; albumin—4·8 g. per cent; globulin—4·2 g. per cent. E.S.R.—26 mm./hr. (Westergren). L.E. test—negative.

Discussion

Progressive systemic sclerosis is a disease rarely seen in children the majority of cases occurring in adult life (Sutton, 1956). In a survey of 64 cases of systemic sclerosis, O'Leary and Waisman (1943) found that the youngest age group was between 10 and 19 years, and all the patients in this age group were females. The present case is, therefore, unusual in that the age of onset of achrosclerosis was 6 years in a male child. The three cases reported by Oliver (1932) are scleredema rather than true scleroderma since spontaneous remissions occurred in all these cases.

In achrosclerosis, the early symptoms in the majority of instances are those due to intermittent arteriolar spasm in the upper extremities. a series of events characterised successively by pallor, cyanosis and rubor identical with the phenomenon of Raynaud's disease and this is usually associated with or followed by achrosclerosis (O'Leary and Waisman, 1943). In the case under discussion the presenting features were the painful ulcers and sclerosis in the finger tips, but neither such vasomotor disturbances were complained of, nor were they observed during his stay in the hospital, and not even after an attempt was made to provocate an attack by dipping the hands in cold water.

Ehrmann, cited by Olsen *et al.* (1945), of Vienna in 1903 first described progressive dysphagia and involvement of the oesophagus in a case of scleroderma. This was later on recorded by Matsui in 1924 and by Rake in 1931 (cited by Rodnan and Benedek, 1962). This was soon followed by many reports on the clinical, roentgenographic and pathologic findings (Lindsay *et al.*, 1943; Olsen *et al.*, 1945; Treacy *et al.*, 1963) which firmly established oesophageal involvement as a cardinal feature of progressive systemic sclerosis. The patient complains of difficulty in swallowing, usually first with solid food and eventually with liquids. The dysphagia may be accompanied by vomiting. There may be merely a feeling of fullness or burning in the retrosternal or epigastric region with no difficulty in swallowing. The symptoms are due to lack of motility throughout the gastrointestinal tract. The lack of contractility accounts for the stasis of the contents of the tract producing the sensation of fullness and pressure.

The radiologic findings may be divided into three groups which may be present singly or in combination:

(a) Constriction in the lower third of the oesophagus which differentiates it from cardiospasm in which only the cardia is involved.

(b) Lack of motility, the greatest delay in the passage is noted at the cardia. Normal peristalsis may be absent altogether. The emptying of the oesophagus may depend also entirely upon gravity.

(c) Dilatation: The oesophagus may be dilated with some retardation of the passage at the cardia without complete obstruction.

In the present case the barium swallow shows a disturbed mechanism of deglutition, with the barium meal dropping down the oesophagus in erect posture and delayed passage in supine with occasional reverse movement. Normal collapse of the oesophagus is not seen after passage of the barium and the oesophageal mucosal pattern is disturbed.

No lesions have been reported in the stomach on roentgenological examination, as has been confirmed in the present case. Kraus in 1924 was apparently the first to report changes in the small intestine. Rake in 1931, Goetz and Rous in 1942, Hame and Schatzki in 1944 and Goetz in 1945 reported additional cases in which the small intestine was involved (all cited by Rodnan and Benedek, 1962). These changes consisted of radiologic evidence of atony, diminution of peristalsis and stenosis (Olsen *et al.*, 1945) with a marked delay in emptying time of the loops involved. No changes in the mucosal pattern were noted. In the present case the small intestine is also affected as evidenced by the sluggish rate of transit of the barium meal.

Barium meal and enema x-ray of the large gut did not reveal any abnormality in the present case, although Leinwand *et al.* (1954) described evidences of rigidity with peculiar narrowing and areas of sacculation, and sometimes the x-ray picture is similar to that seen in ulcerative colitis.

Clinical and radiological examination revealed no abnormality in the heart, although the E.C.G. showed evidences of right ventricular hypertrophy and strain and left ventricular hypertrophy. This might be significant in view of the fact that of 51 E.C.G. done in Lienwand *et al.*'s series only 5 were abnormal and 20 showed minor changes of possible significance. Although Weiss *et al.* (1943) described myocardial lesions as "integral part of scleroderma" and called it a "specific clinical entity", no specific physical finding has been described in scleroderma heart disease.

Clinical and radiological examination of the lungs revealed no abnormality, although the vital capacity was slightly reduced. In the 53 patients examined radiologically in Lienwand *et al.*'s series, 27 were reported as having changes varying from root branch thickening to moderate pulmonary fibrosis.

In the present case clinical, radiological and biopsy examination of the kidney did not reveal any abnormality, but it must be emphasised that involvement of the kidney occurs in practically all cases although in the terminal stages of the disease when the presence of proteins, R.B.C. and cast in urine with elevation of the blood pressure and changes in the fundus oculi draw attention to the renal involvement (Moore and Sheehan 1952). The kidneys at this stage show evidence of scarring with many types of changes in blood vessels, but the following predominate: (a) Acute arteritis and (b) arteriosclerosis. The glomeruli and tubules are also affected.

The aetiology of this disease remains obscure although various theories have been put forward such as endocrine dysfunction (Barlow, 1939; Seyle, 1932), disturbances of the nervous system (Adson and O'Leary, 1930), toxic, infective and traumatic factors nd vascular abnormalities (Boardman, 1929).

Recent clinical, serological and immunohistochemical studies have indeed provided increasingly convincing evidence of an immunologic abnormality which may be important in the genesis but whose exact aetiologic or pathogenetic significance has yet to be determined.

SUMMARY

A case of scleroderma in a boy aged 9 years has been reported. Some atypical features of this case have been discussed with a short review of the literature.

ACKNOWLEDGMENT

The authors are grateful to the Superintendent, Medical College Hospitals, Calcutta, for kind permission to report this case, and to Dr. S. Sen of the Department of Physiology, and Dr. Sukumar Mukherjee of the Department of Medicine, Medical College, Calcutta, for their kind help.

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PERFORATION OF INFARCTED INTERVENTRICULAR SEPTUM

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Perforation of infarcted interventricular septum was first described anatomically by Latham in 1845. The first antemortem diagnosis was made by Brunn in (1923) cited by Lee *et al.* (1962). Sager (1934) found 17 cases in the literature and described one of his own. He pointed out the criteria needed for the diagnosis of this condition, namely, sudden onset of a loud precordial systolic murmur and thrill in a patient with a recent myocardial infarction. In the recent years most reported cases have been diagnosed antemortem and some have been confirmed by cardiac catheterisation. The first attempt at sugical correction of this acquired defect was made by Cooley in 1947. At the present time, 120 years after Latham's initial description the world literature contains more than 200 cases (Holloway *et al.*, 1965).

It is the purpose of this paper to report two cases, and to present and discuss the pertinent clinical and pathological data from the cases reviewed in the literature.

CASE REPORTS

CASE 1:

U., a 50-year-old lady attended the outpatient department of the Medical College Hospital, Calicut, on 5-6-65 with a history of acute retrosternal pain, first felt on 31-5-65, but persisting all those days in milder degree. On examination, it was found that she was having tachycardia, had slightly enlarged heart, and a gallop rhythm. There was no thrill or murmur. She refused to get admitted to the hospital. On 6-6-65, while at home she suddenly developed severe chest pain with dyspnoea and cough and on admission to the hospital next day she had all the features of congestive cardiac failure. In addition, it was found that she developed a prominent systolic thrill and a pansystolic murmur in the 4th left intercostal space close to the sternum. There was no conduction of the murmur to the axilla and there was no variability with respiration.

An E.C.G. was done which showed an extensive anteroseptal infarction. An x-ray of the chest showed a uniform enlargement of the heart with pulmonary congestion. A barium swallow in the R.A.O. position did not show any appreciable enlargement of the left atrium. E.S.R. in the second week was 100 mm./hour. The patient was treated in the hospital for congestive cardiac failure and was discharged after 7 weeks. She was maintained on a small dose of digoxin.

It is presumed that the patient had an acute myocardial infarction on 31-5-65. While she was seen for the first time on 5-6-65, she had no murmurs. It is reasonable to think that she had a rupture of the infarcted interventricular septum on 6-6-65, the onest of which was marked by sudden development of retrosternal pain and rapid progress of congestive failure. She survived 11 weeks and is still under constant medical care.

CASE 2:

This case was seen by the first author at the Trivandrum Medical College Hospital in April, 1963. The patient was a sixty-year-old man admitted with acute anteroseptal myocardial infarction. He was not in shock or congestive cardiac failure at the time of admission. On the 5th hospital day he developed a severe retrosternal pain with development of a systolic thrill and murmur in the 4th left intercostal space close to the sternum. There was a rapid progression of the cardiac failure and the patient died on the 8th hospital day.

DISCUSSION

To make a diagnosis of the rupture of the interventricular septum one should first have evidence that myocardial infarction has taken place. This should be followed by a sudden appearance of a loud systolic murmur best heard in the 3rd and 4th left intercostal space and usually audible widely over the precordium. The murmur is associated with a thrill and is greatest in the area where the murmur is loudest.

Incidence—Incidence of cardiac rupture in acute myocardial infarction is 4·6 per cent according to London and London (1965). In 12 per cent of these cases the site of rupture is intraventricular septum (Lee *et al.*, *loc. cit.*) Rupture of interventricular septum accounts for death in about 1 per cent of patients with myocardial infarction.

Age and sex—Average age experiencing this complication is 61, though cases have been reported in patients from the age of 35-87, (Bean, 1938). It is relatively more frequent in female patients (Holloway *et al.*, *loc. cit.*). According to London and London (*loc. cit.*) women with fatal myocardial infarction had 6·9 per cent chance of developing cardiac rupture, whereas men had a 3·8 per cent chance.

Pathogenesis—Pathogenesis of septal perforation is not clear. Though the septum is involved in 70 per cent of myocardial infarction perforation is uncommon. Hypertension and physical exertion by increasing the intraventricular pressure may be possible factors in the production of a perforation. It is relatively more common in those with hypertension (Holloway *et al.*, *loc. cit.*). According to the autopsy series by London and London (*loc cit.*), hypertension, physical exertion, shock, heart failure or anticoagulant therapy do not appear to influence the incidence of cardiac rupture. The main factor seems to be the extent of myocardial necrosis.

Time of onset after infarction—The catastrophe usually occurs within 4-11 days after the infarction, before the organisation occurs. In the present cases it occurred in the 7th and 5th day respectively.

Location and number of perforation—Though any portion of interventricular septum can be involved, muscular portion near the apex is the commonest site of perforation (Bond *et al.*, 1953). Number of perforations varied from 1 to 9 in the cases reported in the literature. Multiple perforations were found in 6 out of 15 cases reviewed by Lee *et al.* (*loc. cit.*). The size of the perforation varied from few millimeters to 3 cm. with an average of 1 cm. (Lee *et al.*, *loc. cit.*).

Clinical features—Sudden changes in symptoms and physical signs are characteristic of rupture of infarcted interventricular septum. Majority of patients showed definite renewal or aggravation of cardiac pain (Bond *et al.*, *loc. cit.*). Some suddenly developed marked dyspnoea at rest coincident with the rupture. Rupture leads rapidly to congestive cardiac failure (Holloway *et al.*, *loc. cit.*). It is important to have a good initial observation and recording of the heart sounds prior to the rupture so that precipitous changes may be readily appreciated. As would be expected, the intensity of the murmur due to ruptured intraventricular septum is greatest in the fourth left parasternal space and the murmur is usually holosystolic. Rarely, as in patients with a congenital ventricular septal defect involving muscular septum, the murmur may cease before the second sound. Such an occurrence suggests that defect is small and closed by contracting interventricular septum.

E.C.G.—Appearance of septal perforation was not associated with any alteration of typical evolutionary electrocardiographic changes of acute myocardial infarction (Lee *et al.*, *loc cit.*). In our first case, where E.C.G. was repeated after 3 weeks, 5 weeks, and 8 weeks respectively, the usual evolutionary changes of an anteroseptal infarction was noted.

X-ray—Cardiomegaly, increased pulmonary vascular markings, and left atrial and left vetricular dilatation may occur. Lee *et al.* (*loc. cit.*) has demonstrated left atrial enlargement in his case. Our present case (No. 1) was not associated with left atrial enlargement.

Differential diagnosis—Systolic murmurs for the first time after an episode of myocardial infarction may be due to: (1) rupture of ventricular septum, (2) rupture of a papillary muscle, (3) papillary muscle dysfunction and (4) acute left ventricular dilatation.

Features of papillary muscle rupture: These are (1) Posterior papillary muscle is almost always the site of rupture and this as a rule, is associated with posterior myocardial infarction. (2) Sudden appearance of mitral incompetence. (3) The murmur is more musical and more frequently associated with a diastolic murmur. (4) Thrill is almost never found. (5) Sudden marked mitral regurgitation results in severe left ventricular failure, because of sudden burden on the infarcted left ventricle.

Papillary muscle dysfunction: This condition has been recently described by Philips *et al.* (1963), who reported 13 cases. All patients were men between the ages of 23 and 85 years. Majority were in the 7th decade. Papillary muscle dysfunction is characterised by the appearance of a mid or late systolic apical murmur following an episode of myocardial ischaemia. In some patients the murmur is audible only during and immediately after the episode of ischaemia. Unlike the previous condition it is noteworthy that congestive cardiac failure is not a prominent part of this syndrome. A systolic bulge is often detectable over the apex when the murmur is audible. Characteristic E.C.G. changes are: (1) Depression of QRS-T junction with convex upward deformity of ST-T intervel, and (2) terminal inversion of T wave in the Tu segment, in the mid and left precordial leads.

Acute left ventricular dilatation: Acute left ventricular dilatation is usually considered as a cause for the *de novo* appearance of a systolic murmur following an episode of acute myocardial insufficiency, or infarction. Signs of left ventricular failure and enlargement are usually present in such patients. The murmur may be heard only transiently, disappearing when the signs of failure regresses. The murmur is less intense, low pitched, and located more at the apex than the systolic murmur of perforated ventricular septum. It is usually assumed that mitral valve ring has dilated in such patients along with ventricular cavity.

Pericarditis after myocardial infarction may at times produce a rub heard only during the systolic phase and that may be mistaken for a systolic murmur.

Prognosis—Prognosis is very poor. Sanders *et al.* (1956) reported that more than 50 per cent died in the first week. Only 13 per cent survived two months. Case 1 of the present series has survived 11 weeks, whereas Case 2 died during the first week itself. There were, however, isolated reports of prolonged survival, longest being 13 years (Landale and Schlappi, 1962).

Surgical treatment—There are several reports of attempted surgical correction of acquired ventricular septal defect secondary to myocardial infarction. Shickman *et al.* (1959) reported a technique avoiding cardiopulmonary bypass which was used successfully to close a defect in a 61-year-old man eight weeks after his infarct. Payne *et al.* (1963) have recently reported successful closure of a defect in a 60-year-old man with cardiopulmonary bypass, 13 months after the development of a murmur. It is recommended that closure should be limited to patients who survive initial insult and who have the acquired shunt for a significant period of time.

SUMMARY

Two cases of acquired ventricular septal defect are recorded and salient features of acquired ventricular septal defect secondary to myocardial infarction are reviewed from the literature.

ACKNOWLEDGMENT

We are thankful to Dr. R. Ananthanarayan, Principal, Medical College, Calicut, and Dr. M. Thangavelu, Principal, Medical College, Trivandrum, for allowing us to publish these cases. Our thanks are also due to Dr. M. Thankam, Superintendent, Medical College Hospital, Calicut.

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MERALGIA PARAESTHETICA

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Though rare, tunnel syndrome or meralgia paraesthetica of lateral cutaneous nerve of the thigh can sometimes be diagnosed if the condition is in one's mind. Two cases of meralgia paraesthetica are being reported.

CASE REPORTS

CASE 1:

A Hindu, male, 45 years, manual labourer, married, complained of: (a) Excruciating pain over the right groin and extending to the right thigh, specially on the lateral side of the thigh. Pain got worse at night and gradually became very severe. The pain was partly relieved on flexion of the hip and dangling the leg at the side of the bed. The duration of pain was one year. He had various forms of treatment at various places without any improvement. Finally, he had to stop work for 6 months after which he consulted us. (b) Some paraesthesia over the front and lateral aspect of the right thigh.

On examination, the patient was sparely built, of average height, with an attitude of flexion at the right hip and quite unable to keep in any one position even for a short length of time. He was in extreme agony with pain. Tender spot was felt just below and medial to the right anterior superior iliac spine. Extension of the hip (right) aggravated pain and could not be performed. Otherwise, movements of the hip, knee, ankle and spine were within normal limits. Paraesthesia was noted over the front and lateral aspect of the right thigh.

Investigations—Examination of blood, urine and stool did not reveal any abnormality. W.R. and Kahn tests—negative. Skiagrams of the spine and hip revealed nothing abnormal.

Diagnosis of tunnel syndrome of lateral cutaneous nerve of the thigh was made.

Operative treatment was decided upon.

Operation was done under local anaesthesia with 15 ml. 2 per cent procaine hydrochloride. The lateral cutaneous nerve was explored by an incision about 2 inches long, rather oblique, commencing just below and medial to the right anterior superior iliac spine. Skin, superficial fascia and deep fascia were incised in the same line. Lateral cutaneous nerve was found and traced up to the point, where it entered through the inguinal ligament in the thigh. A band of fascia found pressing the nerve was divided. The patient at once felt completely relieved of his pain. But the fasciculus of the inguinal ligament deep to the nerve was also divided. Haemostasis was maintained and skin closed with interrupted nylon stitches.

Postoperative period was uneventful. The patient joined his duties on the 8th day of operation after being nearly off work for 7 months for the condition. When seen last about 2 years after the operation, he was perfectly all right and paraesthesia of the thigh had completely disappeared. He was absolutely free of pain since after the operation.

CASE 2:

A young Hindu, male, 24 years, engineer by profession, and due to leave in a couple of months for higher studies abroad suddenly developed severe, constant, dull pain over his left groin and extending to the front of the left thigh. There was a vague history of probable sprain in his left hip about a year ago, when he was playing football. Pain used to be worse at night and on extension of the hip. So he used to keep his leg immobile and flexed. Gradually, in a period of 10 months since the onset of pain, he had to stop work and was prevented from going abroad. He was treated at various places with vitamin B_1, and he consumed a lot of pills to get rid of his pain.

On examination tenderness was elicited along lateral cutaneous nerve of the left thigh. Slight anaesthetic patches over the distribution of the 2nd and 3rd lumbar nerves in front of the left thigh were present. There was some wasting of the quadriceps of the left thigh. Movements of hips, knees and spine did not reveal any abnormality.

Investigations — Examination of urine and cerebrospinal fluid and serological tests did not reveal any abnormality. X-rays of the spine and hip were within normal limits.

A diagnosis of irritative lesion of lateral cutaneous nerve of the thigh or meralgia paraesthetica was made.

Treatment was the same as in Case 1. Findings were also almost identical, only the nerve appeared a little thickened above the site of compression.

Postoperative period was uneventful.

The patient joined his duties within 12 days of operation. Nearly 1½ years after his operation, some wasting of his thigh was still in evidence. Otherwise, he was doing very well and he remained completely free of pain.

DISCUSSION

The lateral cutaneous nerve of the thigh arises from the dorsal branches of the ventral rami of the second and third lumbar nerves. It emerges from the lateral border of the psoas major and crosses the iliacus obliquely running towards the anterior superior iliac spine. It then passes behind the inguinal ligament or through its fasciculus and in front of or through the sartorius into the thigh where it divides into anterior and posterior branches.

It is at this point where it enters the thigh through the inguinal ligament, that the nerve gets compressed resulting in meralgia paraesthetica.

Though fascial band was found compressing the nerve in one case, the part of the ligament deep to the nerve was resected to keep the nerve free from the effect of compression. This should always be done, otherwise, the patient will not be relieved of his pain. History of trauma was present in one case but whether it has got anything to do with the aetiology of this condition is not known.

SUMMARY

Two cases of lateral cutaneous tunnel syndrome are described. Both were cured by a simple operation, in which the nerve was explored and any compressing band found divided. The deeper fasciculus of inguinal ligament was also divided.

ACKNOWLEDGMENT

The author expresses his thanks to Dr. S. M. Banerjee, Assistant Medical Officer, South Eastern Railway Hospital, Khargpur, and Dr. K. Roy, Assistant Medical Officer, South Eastern Railway Hospital, Garden Reach, for helping him in preparing the notes for this communication.

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Smallpox
Its Severity and Mildness

The disease 'pox' is widespread in the animal kingdom and affects man, monkey, cattle, birds, rodents and many others. The human disease, smallpox, is prevalent in the world from time immemorial. Reference to this disease can be found in old literatures of India and China. One of the Egyptian mummies, that of Ramesis V, about three thousand years old, bears marks considered to be of smallpox[1]. It is quite reasonable to assume that the people of those days thought seriously about the prevention and modification of the disease. Vaccination against smallpox was thus introduced, first as inhalation of powdered scabs derived from actual cases as snuff, then as variolation (which is inoculation of material from a smallpox pustule into the skin of a healthy person) and finally as the Jennerian vaccination of the present day practice. But it is a tragedy that although the smallpox vaccination is the oldest preventive inoculation introduced, and although its efficacy was never seriously questioned, the disease still exists in many parts of the world. Even in 1963 world morbidity and mortality figures[2], as gathered from reported cases only, were more than 80,000 and 2,500 respectively. The number of actual cases including those not reported was certainly much more. The highly developed countries have succeeded in eradicating the disease, but even they do not feel safe because of the constant threat of importation of the disease from the foci of infection in some other parts of the world as a result of quick air travel of the modern age.

During any epidemic of smallpox, cases of varying severity and clinical picture are observed. Patients have been classified and designated in different ways mainly on clinical grounds. The number of types of cases, naturally, have also varied depending on the system of classification. Thus there are five types in Maegraith's[3] classification, nine types in Dixon's[1], four types and twelve sub-types in Rao's[4] classification, and so on. All these classifications, although based on the clinical picture of the cases (such as number and distribution of the lesions, presence of toxaemia, haemorrhagic manifestations and their timing, etc.), tend to grade basically the severity of the disease. But whatever classification is followed, it is an admitted fact that the haemorrhagic variety of smallpox, specially that in which haemorrhage occurs early, is the most severe from of the disease, mortality being as high as hundred per cent. At the other extreme are the cases with scanty discrete lesions, and some of these cases are so mild that unless they are specially examined critically, they are likely to be missed. Toxaemia is absent and death is rare in them. In between these two extremes there are various degrees of confluent lesions with moderate amount of toxaemia and about 10 to 25 per cent death rate. It is natural to think that the immunity status of individuals (mainly as a result of previous vaccination) at the time when the infecting virus enters the body and tries to establish the infection, as also the patient's immunity response at the early stage of the disease are the principal factors which decide the severity or mildness of the subsequent course of the illness. Determination of the immunity status of individuals at the time of entry of the virus into the body is difficult from the practical standpoint. Sarkar *et al.*[5] determined the response of antibodies (both haemagglutination-inhibiting or HI as well as neutralising) of the smallpox cases during the early stage of illness and found that the haemorrhagic cases had practically no or negligible amount of the two antibodies, whereas the confluent and discrete varieties had fair level of the two antibodies in their sera. Thus by the antibody response alone, although the severity of the haemorrhagic cases could be accounted for, the more severe nature of the confluent cases in comparison to that of the discrete ones could not be explained.

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In any infective disease, immunity response of the patients in the early phase of the illness has, no doubt, great effect on the clinical severity of the case, but other factors, one important amongst which is the degree of virulence of the causative organism, having bearing on this issue cannot also be ruled out. In smallpox, variola minor virus of alastrim (a mild form of smallpox) has been proved to be less virulent to chick embryo[6] than the variola major virus of classical smallpox, and a number of virus strains isolated from smallpox cases in Tanganyika have been found to be intermediate in virulence between variola major and alastrim (variola minor) strains[7]. By employing the same methods as well as other methods for testing virulence of variola virus, Sarkar and Mitra[8] have recently found that 48 per cent and 36 per cent of virus strains isolated from haemorrhagic and confluent cases respectively were positive as tested by all the above methods, whereas none from the discrete group was positive. These facts suggest that in smallpox, as in many other infective diseases, immunity response of the patients as well as virulence of the causative virus has a bearing on the clinical severity of the cases.

The above findings, however, do not explain the haemorrhagic phenomena seen in haemorrhagic smallpox cases. Meckenzie *et al.*[9] have very recently shown that the haemorrhagic cases have deficiency of platelets, prothrombin and accelerator globulin, but the mechanism of these deficiencies is still unknown.

A high percentage of haemorrhagic cases was found by Rao[10] to have been previously vaccinated, whereas none of the cases reported elsewhere in this issue by Mitra *et al.*[12] from whom reliable history of vaccination could be elicited, was vaccinated before. It must be remembered that primary vaccination taken many years ago, may not, in the absence of revaccination, leave detectable level of circulating antibody[11], thereby rendering the individual as susceptible as an unvaccinated one. Finding of no or negligible level of antibody[5] in the blood of the haemorrhagic cases is significant from that point of view. This also explains the prolonged and sometimes high level of viraemia[12] in the haemorrhagic cases. How much the prolonged viraemic condition is responsible for the bleeding episodes in haemorrhagic smallpox is, however, not known. Further probe into the matter is necessary to unravel the mystery of this dreadful condition termed haemorrhagic smallpox.

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CURRENT MEDICAL LITERATURE

Hair and Physiological Baldness

MERCANTINI, E. S. (*Canad. Med. Ass. J.*, **92**: 1345, 1965) from the Department of Medicine (Dermatology), Ottawa General Hospital, Ottawa, writes:

Human hair is one of the structures of the body about which little is generally known. Disease affecting the hair is often minimised or ignored by physicians because of lack of knowledge of this rudimentary organ. However, the patient's attitude toward hair loss is very different from the doctor's and he feels great concern about such loss. The development, growth and morphology of human hair are briefly presented. Experimental work which will increase our knowledge of hair growth and loss is reviewed. The various forms of physiological alopecia from birth onward are discussed, with special emphasis on the least-known type of physiological baldness, "Male-pattern baldness" in the adult female.

Total Body Scanning with Strontium-85 in the Diagnosis of Metastatic Bone Disease

SIMPSON, W. J. AND ORANGE, R. P. (*Canad. Med. Ass. J.*, **93**: 1237, 1965) from Princess Margaret Hospital, Toronto, carried out Sr^{85} scans on 46 patients who complained of skeletal pain but whose radiographs were negative to demonstrate skeletal metastases before radiographic changes were apparent. Positive scans were obtained in 34 patients, 20 of whom were subsequently shown to have metastases; three did not have skeletal metastases a year or more later; the outcome is unknown in 11 patients. Twelve patients had negative scans: three ultimately developed metastases, six did not, and three were inconclusive. Autoradiographs demonstrated Sr^{85} concentrations in areas of reactive osteogenesis.

Although not specific for skeletal metastases, Sr^{85} scans are most helpful in substantiating this diagnosis when radiographic changes are absent.

Relapses of Urinary-tract Infections in Children

STANSFELD, J. M. (*Brit. Med. J.*, **1**: 635, 1966) from Child Health Department, the Royal Victoria Infirmary, Newcastle upon Tyne, kept under continued surveyance a group of 350 children with urinary-tract infection. The infections were not controlled in 28 cases, all of which had major renal-tract abnormalities. The remaining 322 responded to treatment but had a high relapse rate, particularly during the first 18 months after initial control.

During treatment relapses might occur at any time, and many were associated with resistant organisms or the child's failure to take the prescribed medicine or pills. Relapses after treatment had stopped were usually unexplained, but were most likely to occur within the first three months.

Thirteen per cent of all relapses was associated with upper respiratory infections. Relapses were significantly more frequent during the winter half-year, November to April, than in the summer.

There was some suggestion that for non-surgical cases with a history of over two years' duration anything less than three months' treatment was inadequate.

Clinical Observations Relating to Incidence and Aetiology of Urinary-tract Infections in Children

STANSFELD, J. M. (*Brit. Med. J.*, **1**: 631, 1966) from the Royal Victoria Infirmary, Newcastle upon Tyne, made a study of 350 children with urinary-tract infections seen at hospital.

The yearly rates of referral to a non-teaching hospital amounted to approximately 0·17 per 1,000 boys and 0·4 per 1,000 girls.

There was no evidence that the incidence of infection in families with affected children was any greater than in the general population.

Infection most often started in infancy, particularly in the newborn. Girls were more often affected than boys except in the first month of life, when the reverse occurred.

The incidence of infection in the neonate infant or older child did not appear to be related to the social class of the family, age of parents, birth order, or size of the family. If the height of the children is taken as an indication of their nourishment those in whom infections started after infancy would seem to have been as adequately fed as other children in the community in which they lived.

Major structural abnormalities of the urinary tract were found in 45 per cent of the cases investigated, and a further 36 per cent had vesico-ureteric reflux or obstruction of the bladder-neck.

Gross abnormalities, especially those causing obstruction, were particularly prevalent in males and in infants whose symptoms began in the first month of life.

An acute respiratory-tract infection was noted within a week before the onset of the urinary-tract infection in 13 per cent of the cases.

Infection after infancy started more often in the winter than in the summer.

Breast Cancer

Combined Clinical Staff Conference at the National Institutes of Health, Bethesda, Maryland

BERLIN, N. I., ANDERVONT, H. B., SHIMKIN, M. B., KENNEDY, B. J. AND FREI, E. (*Ann. Intern. Med.*, **63**: 321, 1965) write:

Carcinoma of the breast is the most common tumour in women. The incidence varies significantly in different parts of the world. In the United States there is no evidence that in the last 20 to 30 years significant progress has been made in prolonging life in these patients.

A virus (Bittner agent, mammary tumour virus) has been identified in the mouse mammary tumour and its role studied extensively.

The initial treatment of breast cancer is, in general, surgery. The extent of surgery and the use of radiation therapy before or after surgery remain controversial. Endocrine therapy, either removal of ovary, adrenal, or pituitary gland or additive therapy using oestrogens, androgens, or corticoids has been studied extensively, and guidelines for its use are summarised. Chemotherapy with other agents is relatively new, and its alternate role is to be determined.

Erythrocyte Sedimentation Rate in Elderly Hospital In-patients

BOYD, R. V. AND HOFFBRAND, B. I. (*Brit. Med. J.*, **1** : 901, 1966) from University College Hospital, London, conclude that the conventionally accepted upper limit of normal of the E.S.R. is not applicable to a hospital in-patient population aged over 65 years. The probable upper limit of normal for this group is about 40 mm./hour. Nearly one-third of elderly patients without any apparent cause for an abnormal E.S.R. had values over 20 mm./hour, an incidence significantly different from that of younger control groups.

Occult infections of the urinary tract are very common in the elderly, and were found in 34·3 per cent of all in-patients over 65 during the period studied. These infections do not contribute to the higher E.S.R. levels in the elderly.

Rheumatoid latex fixation tests are more often positive in older age groups, but no correlation was found between conventionally raised E.S.R.s and positive latex in the patients studied.

Diffuse and Progressive Interstitial Pulmonary Fibrosis in Children

WEINGARTNER, L. (*German Med. Mth.*, **10** : 222, 1965) from the Department of Paediatrics, Martin Luther University of Halte-Wittenberg, writes :

Diffuse interstitial progressive pulmonary fibrosis may occur in an acute or in a chronic form, the latter being the more frequent. Ten personal cases are reported. In most of them the disease began as a nonspecific infection and took its course in repeated bouts.

The initial stage may be described as compensated pulmonary insufficiency, while the second, final stage is one of decompensated pulmonary insufficiency. There is a slowly progressing development of cor pulmonale. At necropsy the lungs have the consistency of hard rubber or leather. Microscopically there is diffuse interstitial fibrosis with enlargement of the alveoli as well as some collapse of the alveolar spaces. Because the alveolar walls are thickened the diffusion of oxygen may be impaired. In addition there is narrowing of the pulmonary capillaries. Respiration and perfusion of the lungs are affected simultaneously.

Respiratory function tests showed a decreased forced expiratory volume, there was usually a shift in the ratio of the duration of inspiration and expiration, a decrease in the ventilatory reserve and sometimes a diminished timed expiratory volume.

The radiological features included radial striations, shadows and net-like markings as well as infiltrations. During life, diagnosis can be confirmed only by biopsy or excision. Corticoids and circulatory stimulants may be of value.

Critical Electrical Stimulus which Causes Uterine Pain

THEOBALD, G. W., MENZIES, D. N. AND BRYANT, G. H. (*Brit. Med. J.*, **1** : 716, 1966) from the Obstetric Unit, University College Hospital, London, write :

Pain indistinguishable to the woman from dysmenorrhoea can be provoked by chemical, mechanical, or electrical stimuli applied to the endocervix. Pain so caused, up to a certain intensity, can be relieved by anaesthetising the ilio-hypogastric and ilio-inguinal nerves. A precise method for measuring the effective electrical stimulus to the cervix which causes pain, and the amount by which it can be increased before anaesthetisation of the ilio-hypogastric and ilio-inguinal nerves becomes ineffective for its relief, has been described. This pain comes almost immediately the effective current is switched on, and disappears immediately it is switched off.

Women with dysmenorrhoea have a much lower threshold to cervical pain thus caused than do women who have painless periods. In the former group the threshold to such pain may be increased twentyfold by anaesthetising the above-named nerves. This technique is valuable in the study of uterine pain, and the results indicate where skin electrodes should be placed in order to induce labour with an electric current.

Treatment of Cyclic Neutropenia with Testosterone

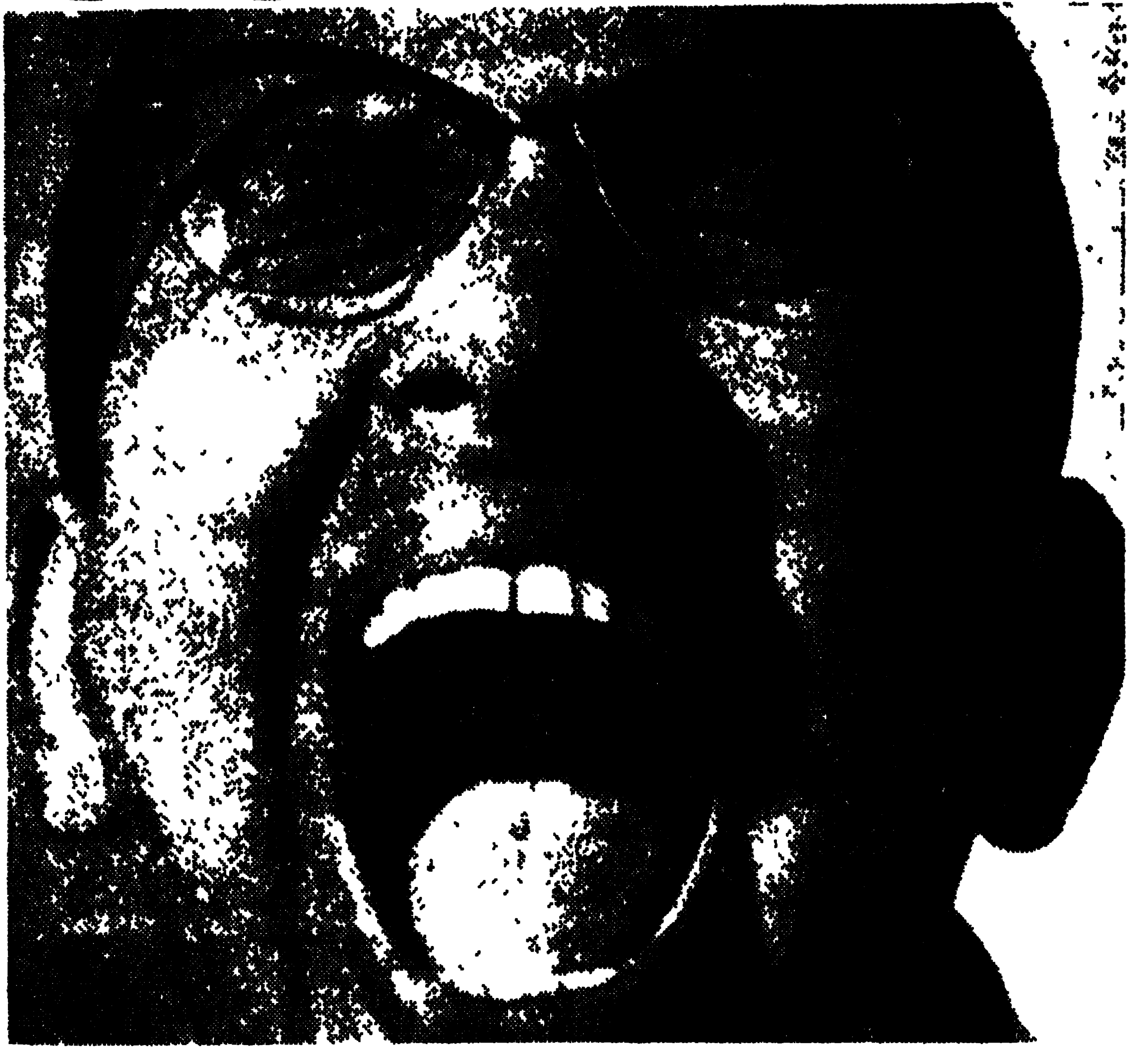
BRODSKY, I., REIMANN, H. A. AND DENNIS, L. H. (*Amer. J. Med.*, **38** : 802, 1965) from Department of Medicine, Hahnemann Medical College and Hospital, Philadelphia, write :

A case of periodic neutropenia in which the patient was treated with large doses of testosterone before and after splenectomy is reported. Testosterone therapy before splenectomy caused subjective and objective improvement. Splenectomy alone failed to alleviate the patient's symptoms or to alter the cyclic neutropenia. Retreatment with testosterone again abolished the patient's symptoms and ameliorated the cyclic neutropenia. The effect of testosterone on the marrow granulocytic reserve is discussed.

Jaundice : Value of Five-Day Steroid Test in Differential Diagnosis

WRUBLE, L. D., KALSER, M. H., JONES, R. H., VLOEDMAN, D. AND BACHORIK, P. (*J. Amer Med. Ass.*, **195** : 184, 1966) from the University of Miami School of Medicine, Fla, and the Veterans Administration Hospital, Coral Gables, Fla, determined the clinical efficacy of a short course of steroid therapy in differentiating the aetiology of jaundice. Also, observations were made on the mechanism of action of steroids on bilirubin metabolism. A standard five-day course of prednisone, 60 mg. daily, was given to 33 patients. The final diagnosis was established by biopsy, laparotomy, or autopsy. Clinically, the response to this course of steroids clearly separated extrahepatic jaundice due to malignancy from intrahepatic jaundice of viral inflammatory origin. In viral hepatitis, the suggested mechanism of action of steroids appeared to be enhanced clearing of conjugated bilirubin from the serum.

COSOME



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NOTES AND NEWS

Amendments to the Indian Medical Council Rules

The Government of India has made the following amendments to the Indian Medical Council (Election of Licentiates) Rules 1965:

"(1) These rules may be called the Indian Medical Council (Election of Licentiates) Amendment Rules, 1966.

(2) In the Indian Medical Council (Election of Licentiates) Rules, 1965,—

(i) in Form I,

(a) for the existing entry against serial number 6, the following entry shall be substituted, namely :

'Page number in the Indian Medical Register or its supplement (mentioning the year) in which the name appears';

(b) In the entries against serial number 9 and 11, for the words "the serial number in the Indian Medical Register", the following words and brackets shall be substituted, namely :

'Page number in the Indian Medical Register or its supplement (mentioning the year) in which the name appears';

(ii) In Form III, for the words 'serial number in the Indian Medical Register', the words and brackets 'page number in the Indian Medical Register or its supplement (mentioning the year) in which the name appears' shall be substituted."

Reduction of Birth Rate by 1975

Disclosing that she had asked the State Chief Ministers to take a special interest in family planning, the Prime Minister recently told a press conference at New Delhi that the Government planned to reduce the birth rate from 41 per 1000 to 25 per 1000 by 1975.

Laying special stress on the use of the intra-uterine contraceptive device and sterilisation, the Prime Minister said that the number of loop insertions from July 1965 to March 1966 was about 800,000 and the sterilisation operations since 1956 had exceeded 1·6 million. During 1961, the target was 600,000 loop insertions and 1·23 million sterilisation operations.

She complimented Punjab, West Bengal, Maharashtra, Gujarat, Kerala and Mysore on their speedy progress in the loop programme.

Plan for Strengthening Basic Health Services

Addressing the 15th session of the Central Council of Health at Bangalore, the Union Health Minister pleaded for the strengthening of basic health services through a complex of primary health centres. She said that this would maintain the predominantly rural bias given to the strategy of development in the field of health, and meet the needs of the bulk of people.

Admitting that the medical care programme had received scanty attention in the first three plans, it was said that this would be made good by giving the highest priority to the development of a comprehensive basic health service. District hospitals would be upgraded and linked to teaching units and primary health centres.

She said that the policies of the first three plans, which had stood the test of time, would be continued into the Fourth Plan. "At present we should concentrate our efforts on the control and eradication of communicable diseases and on the improvement of environmental sanitation."

Referring to food adulteration and drug control, the Health Minister urged the States to implement vigorously the legislation already in force.

In stressing that schemes for training health workers should be intensified to ensure full utilisation of all trained health personnel, it was disclosed that the Government proposed to increase the number of trained nurses by 45,000 during the Fourth Plan period.

The Health Minister felt that the emoluments of doctors and nurses in many States needed 'urgent upward revision'. A number of States was thinking of full-time teaching posts. But if private practice was to be banned, the salaries must be made adequate. It was also necessary to think of the needs of the well-to-do citizens who could and were willing to pay for health services.

Drawing the attention of the Council to the dangerous trend of diverting funds from health to other sectors she said, "We should not agree to the diversion of already limited funds for health."

Soviet Doctors on Advantages of Cadaver Blood and Re-animation Centres

Speaking at Delhi on the advantages of cadaver blood and re-animation centres the visiting Soviet doctors Dr. G. A. Pafomov, an expert in cadaver blood transfusion, and Dr. G. N. Gulyaev, a specialist in anaesthetics, disclosed that it had been proposed to set up a centre at Delhi for obtaining blood for medicinal purposes from a dead body. The capital along with Calcutta and Kanpur would also have a centre each for re-animation of people who are victims of shock, tetanus, electrocution, asphyxia and similar causes.

Dr. Pafomov said that cadaver blood obtained from a corpse was fresh and cheaper to obtain. But the body should be less than six hours old. Blood should not be obtained from those who died after prolonged illness or suffered from any disease. One definite advantage of cadaver blood was that it did not coagulate because it was self-dissolving. On an average, a corpse could provide three litres of blood.

Dr. Pafomov further said that during his Indian tour he had shown at four different places how cadaver blood was obtained.

Dr. Gulyaev said that the re-animation centres would help save many lives with the help of special breathing equipment he had suggested to Indian authorities. In the USSR, 60 out of 100 victims of shock, infarction, electrocution, asphyxia and similar causes were being saved by the special resuscitation methods.

Phytochemical Unit Planned

The West Bengal Government is considering a report submitted recently by a committee it established sometime ago to explore the feasibility of a scheme to set up a phytochemical unit at Siliguri in North Bengal.

The committee has said that the unit can manufacture, among other things, caffeine from tea-waste and tea-prunings, ergot alkaloids from ergot seed, atropin from atropa and papain from *Carica papaya.* Apart from extending ipecac plantation throughout the State, the committee has recommended the establishment of drug farms in the districts of Midnapore and Bankura for the cultivation of "ishapgul"-yielding plants.

Treatment of Cancer by Vaccination

According to Dr. Paul L. Wolf, Professor of Pathology, Wayne State University and Director of Experimental Pathology at the Detroit Institute of Cancer Research, medical researchers of Wayne State University may have discovered a way to treat cancer by vaccination. The results that they claim for a 4-year programme so far include the following: two cancer patients, earlier given up as hopeless cases, completely freed of their tumours; eight others once considered beyond help still alive, their cancers either halted or growing more slowly; two patients with advanced tumours their lives believed prolonged by the treatment. Others among the 20 patients treated showed no improvement.

Failure in these cases, Dr. Wolf said, probably came because the disease was too far advanced and the patient's body was no longer capable of producing cancer-fighting antibodies.

The Wayne group's vaccine, he explained, aids the victim's body in producing these antibodies.

Many cancer patients are lost, he said, because their bodies did not fight the disease. The body recognised the malignant cells as part of it and did not react by producing the chemicals needed to kill them.

The group combined cancerous cells taken from the patient with chemicals obtained from the cells of rabbits. Then the combination was injected into the patient.

His body then recognised the matter as foreign and produced antibodies to fight it killing or retarding the tumour in the process.

TB Vaccine Found Effective against Cancer

According to a Japanese news agency report a vaccine derived from tubercle bacilli and used by Dr. Seiichi Umehara of the Surgical Department of the Social Insurance Central Hospital in Shinjuku has proved to be effective in the treatment of persons suffering from advanced cancer and from a recurrence of the disease.

The tuberculosis vaccine used by Dr. Umehara was developed by Prof. Nhisato Maruyama of the Dermatological Department of the Nippon Medical College.

It is a "sister product" of the Maruyama vaccine, developed by Prof. Maruyama some 20 years ago for treatment of tuberculosis and tuberculoid leprosy cases.

The vaccine is reported to be completely harmless and without side-effects.

Pan Chewing and Oral Cancer

A research study of the relation between cancer and the use of tobacco and 'pan' in India will be conducted in four rural areas in the country by the Basic Dental Research Unit of the Tata Institute of Fundamental Research with the assistance of U.S. Government grant of Rs. 1,490,378 from the National Institute of Health.

The research is to determine the various forms that cancer takes in a village environment and whether smoking and chewing tobacco either causes cancer, increases its incidence, or effects the forms which it assumes.

Does the chewing of 'pan' contribute to oral cancer? Finding an answer to this question will be one of the principal objectives of the research.

Mumps may Cause Birth Defects

Dr. Lon White, of the U.S. National Institute of Child Health and Human Development, has noted "significant abnormalities" in a large number of babies born to mothers who had mumps and chickenpox during pregnancy.

Dr. White participated in a study of 30,000 pregnant women as part of a long-range project of the perinatal research branch of the National Institute of Neurological Diseases and Blindness.

He found 40 mothers who had mumps and 23 who had chickenpox during pregnancy. Significant abnormalities could be seen in about 40 per cent of the babies of the chickenpox mothers, and about 35 per cent of the babies born to the mothers who had had mumps.

There were defects in the babies' growth, said Dr. White. Their head circumference, he noted, was "suspiciously low".

The impairment of growth suggested an impairment of general health. In some cases abnormalities of the liver were found. Also observed were instances of mental retardation.

Although chickenpox and mumps have not been blamed for these defects before, he could find no other explanation.—*Medical News.*

A New Vaccine against Mumps

A new and almost completely effective vaccine against mumps has been recently claimed at Chicago by Dr. Maurice Hilleman who developed it after his eight-year-old daughter had the ailment. She provided him the virus that was developed into the vaccine.

Dr. Hilleman told a meeting of the American Therapeutics Society that 80 per cent of the children given the vaccine in experiments were effectively immunised.

U.S. Specialists Talk on Cardiology in Calcutta

The American College of Cardiology Faculty Circuit Course Programme was recently organised in Calcutta under the joint auspices of the Cardiological Society of India, Indian Medical Association and the Calcutta Medical Club. The programme consisted of lectures by five leading U.S. specialists in Cardiology and case demonstrations. The visiting specialists were Prof. F. H. Adams, Dr. Charles A. Hufnagel, Dr. Albert N. Brest, Dr. Harold T. Dodge and Dr. George C. Morris.

The American cardiologists were accorded a gracious and warm welcome by their professional colleagues in Calcutta before a large audience which included distinguished doctors from all over India. Tributes were paid to the high qualifications of the visiting doctors and mention was made of the value which would result from their visit to the Calcutta cardiologists and to people affected by heart ailments.

Prof. C. L. Mukherjee, Director of Health Services, West Bengal Government, who opened the programme spoke of the comparative studies of heart diseases in India and abroad.

Prof. D. P. Basu, President of Cardiological Society of India, and Chairman of the Reception Committee, presented the welcome address. He emphasised the need for opening investigating centres for diagnosis and treatment of the poor in all the hospitals in the State.

Dr. H. K. Bose, Secretary, Cardiological Society of India, gave the vote of thanks.

Following this Prof. F. H. Adams presented data on rheumatic heart disease and its treatment. Dr. C. A. Hufnagel described his method of implanting heart valves named Hufnagel's valve after him. Dr. Albert N. Brest and Prof. Harold T. Dodge in their talks dwelt on other aspects of cardiology.

CORRESPONDENCE

The editor is not responsible for the views expressed by correspondents

Otogenous Tetanus

SIR,—We were interested in reading an article on otogenous tetanus by Vakil *et al.* published in your esteemed journal (*J. Indian M. A.*, 46 : 6, 1966).

We reported at the First International Conference on Tetanus in 1963 almost similar findings (Patel *et al.*, 1965a).

The authors have mentioned mortality in their prognostic groups I and II where incubation period is known (Vakil *et al.*, 1963). However, in otogenic tetanus as otitis media is chronic and present for months prior to the onset of tetanus, incubation period in large majority would be indefinite or unknown and they would belong to the authors' prognostic group III. There is no mention of mortality in this group at all in the report.

The authors encountered local tetanus in otogenic cases. It is known that when muscles near about the site of infection, e.g., after injury are involved, i.e., when they are rigid and only local spasms occur, the case is labelled as local tetanus. In otogenic tetanus how this could occur is difficult to understand.

Authors failed to isolate *Cl. tetani* from 30 cases of otitis media not suffering from tetanus. We have examined ear discharge from 4090 cases of otitis media not suffering from tetanus and found *Cl. tetani* in six of them (Patel *et al.*, 1965b).

Authors have mentioned that lower mortality in otogenous tetanus was unexplained. We believe the low mortality might be due to a lack of anaerobic medium for growth and poor vascularity of the site of infection (Patel *et al.*, 1965a). I am etc.,

Bombay B. C. MEHTA, M.R.C.P.

REFERENCES

PATEL, J. C., KALE, P. A. AND MEHTA, B. C.—*Proc. First Int. Conf. Tetanus*, 1965a, p. 158.

PATEL, J. C., RAO, S. S., DOSHI, J. C. AND GOODLUCK, P. L.—*Ibid.*, 1965b, p. 327.

VAKIL, B. J., TULPULE, T. H., ARMITAGE, P. AND LAURENCE, D. R.—*Clin. Pharmacol. Therap.*, 4 : 182, 1963.

Author's Reply

SIR,—We are thankful to Dr. Mehta for his comments on our paper. We are afraid our prognostic classification has not been clearly understood by him. Our prognostic groups were primarily based on period of onset. Incubation period is always an unreliable criterion as time of wounding and time of infection may not be the same. We are sorry to find that Dr. Mehta has failed to understand our classification of severity of tetanus which has been already described elsewhere (Vakil *et al.*, 1964). By 'local' we mean confined to one part of body and in this case it meant lock-jaw only. We are not aware of any scientific basis in favour of the hypothesis suggested by Dr. Mehta to explain the low mortality of otogenous tetanus. I am, etc.,

Bombay B. J. VAKIL, M.D.

REFERENCE

VAKIL, B. J., IYER, S. N., TULPULE, ASHOK, MEHTA, A. J. AND TULPULE, T. H.—*J. Indian M. A.*, 42 : 203, 1964.

Pay Scale for A.M.O.s in Tea Gardens

SIR,—Very recently the Wage Board for Tea Garden Employees has submitted its recommendations to the Government of India. The pay scale recommended by the Board for the A.M.O. is Rs. 250-15-400-EB-20-500, which has little difference from that recommended for the Head Clerk of the tea garden. It is also quite amazing that 'EB' (efficiency bar), a deleted word in the tea garden service rules, has been revived by the Wage Board this time and it appears that the same would be applicable only in case of tea garden doctors. All other categories of employees have been mysteriously exempted from the purview of this bar. It is hoped that the I.M.A. which has been trying for the improvement of the service conditions of the tea garden doctors would take up the matter with the appropriate authorities. I am, etc.,

D. K. TALUKDER
Dibrugarh Member
I.M.A., Dibrugarh Branch

OBITUARY

Dr. Anath Nath Basu

Born on 15-10-1898, Dr. Anath Nath Basu received his elementary and college education at Calcutta. He passed the Matriculation and the I.Sc. examination with credit before he joined the R. G. Kar Medical College (the then Carmichael Medical College) in 1918. He had a particularly brilliant career as a student of medicine. He was a prosector in anatomy and stood first in university examinations in chemistry (organic and inorganic), pharmacology, pathology, and ophthalmology. For the last distinction in the final M.B. examination which he passed from the Calcutta University in 1924 he was awarded the Ushangini Gold Medal.

In choosing medicine for a career, Dr. Basu was inspired by his father after his two brothers and one sister had passed away in a span of 3 days at his native village at Udairampur (24 Parganas) for want of medical attention which in those days was not available in remote villages.

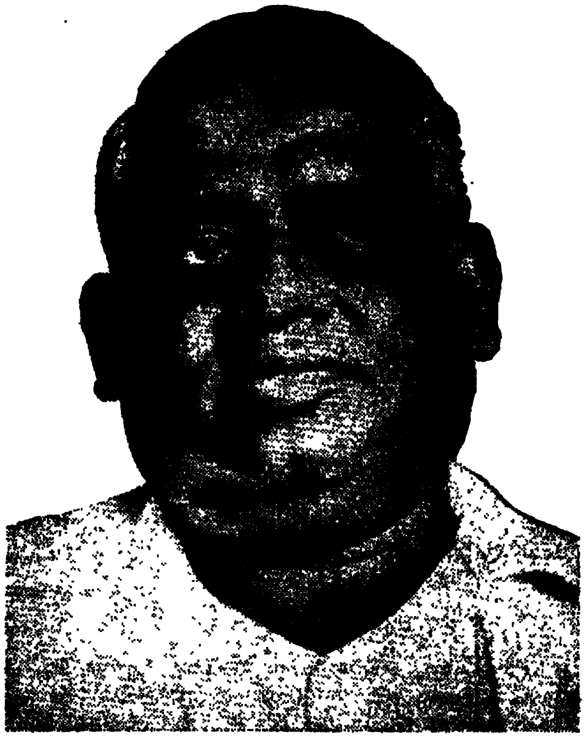
After graduation, he took up ophthalmology as a speciality and soon built up a busy practice in Calcutta. This notwithstanding, Dr. Basu remembered the sad plight of his co-villagers at Udairampur and its surroundings. To give succour to the poor rural folk he started an outdoor dispensary at Amtala near Diamond Harbour in 1924 where he used to examine patients, give them proper medical advice and sometimes arrange for their medicines free of cost. Keratomalacia was a local problem at the time. Vitamin A deficiency in the wake of chronic dysentery and allied conditions following use of infected pond water for drinking was considered the probable cause. To remove the same Dr. Basu first sank one tubewell in his own land to make the villagers health conscious in the matter of drinking water. His sustained effort was in a way responsible to control keratomalacia in the area.

Dr. Basu stubbornly resisted the then current practice of couching for cataract and used to educate the people that couching was the cause of blindness. His charitable disposition led him to institute and maintain two beds in the name of his mother and deceased daughter in his clinic at Calcutta where he used to operate on patients free of cost. In 1933, during the outbreak of epidemic dropsy in Bengal he worked extensively on "Aetiology of Epidemic Dropsy Glaucoma" and published several original papers on the subject. Communications on various aspects of his speciality were from time to time published in different journals in the earlier years of his practice.

Dr. Basu was appointed the first Registrar when the Eye Department of the Carmichael Medical College was expanded. As Registrar he had to teach his students, many of whom were inspired by his teaching to take up ophthalmology for a career. After registrarship he was for some time a demonstrator in the department of pathology when he mainly worked on the pathology and bacteriology of eye diseases.

With Dr. Basu teaching was a dream. After leaving the Carmichael Medical College he taught hygiene in at least two high schools of Calcutta for a number of years and this he did in an honorary capacity.

Dr. Basu organised the Eye Department of South Suburban Hospital and for a long time he was its Senior Visiting Surgeon. He was also Senior Visiting Surgeon, Professor and Head of the Department of Ophthalmology, Viswanath Ayurveda College & Hospital till his last day. He was elected President of the Re-Union of Past Students of the R. G. Kar Medical College in the year 1950. He was also a member of the admission board of Nil Ratan Sircar Medical College in 1957 appointed by the Government of West Bengal. He was closely connected with the Indian Medical Association and the All-India Ophthalmological Society as a member. His free service as a consulting ophthalmic surgeon for years on end to Rama Krishna Mission, Saradeswari Asram and other organisations will long be remembered. The poor people were greatly helped by him in their distress.



DR. ANATH NATH BASU

Dr. Basu possessed very good health. He used to work 16 hours a day for many years for the sake of his profession. He died on 2-4-66 following an attack of Stokes-Adams syndrome. He had worked during the previous day, seeing patients in the morning as usual. He leaves behind his wife, 6 sons and 4 daughters and a host of relatives, admirers and patients to mourn his loss. It is a matter of satisfaction that his eldest son, Dr. Ramendra Nath Basu, who is also an ophthalmic surgeon of Calcutta, has taken upon himself the burden of maintaining the outdoor dispensary at Amtala and the two free beds for eye cases at Calcutta which late Dr. Anath Nath Basu had instituted on sheer humanitarian considerations.

.SUPPLEMENT

Journal of the Indian Medical Association

Vol. 47, No. 3 CALCUTTA August 1, 1966

Association Notes

XLII ALL-INDIA MEDICAL CONFERENCE, DHANBAD RAILWAY CONCESSION FOR DELEGATES

In course of his Circular No. F.10(3)-11/30/65-66 dated 24-6-66 issued from the I.M.A. Headquarters, New Delhi and addressed to the Hony. Secretaries of all Local Branches of the I.M.A. on the procedure for securing railway concession for delegates to the 42nd All-India Medical Conference to be held at Dhanbad, Bihar, in December this year Dr. Ved Prakash, Hony. General Secretary, Indian Medical Association states:

It is notified for general information of the members of the Indian Medical Association that the Railway Board has agreed to grant the usual railway concession to the delegates to the 42nd All India Medical Conference to be held at Dhanbad in December this year.

There had been many instances in the past when members of the Association living in out-of-the-way places, have had difficulty in obtaining this concession either because the local railway staff had not been informed by the Railway Board or the procedure of obtaining the concession was not known to the members.

You are requested to ascertain from your local Station Master that he has received information from the Railway Board about the grant of the concession.

The procedure for obtaining concession is very simple. The delegates would have to apply to the Headquarters Office along with their registration fee of Rs. 5/- and then the Railway Concession Form would be sent to them. This Railway Concession Form has to be submitted to the authorised officers of the Railway concerned, viz., the Chief Commercial Superintendent, the Divisional Commercial Superintendent, etc., who will issue to them the concession order, on presentation of which only, the Station Master will issue concession to them.

SHORTAGE OF X-RAY CONTRAST MEDIA

In course of his Circular No. F.578/29/65-66 dated 24-6-66, issued from the I.M.A. Headquarters at New Delhi and addressed to the Hony. Secretaries of the State/Territorial and Local Branches of the I.M.A. on the subject: Shortage of X-ray Contrast Media, Dr. Ved Prakash, Hony. General Secretary, I.M.A., states:

I am reproducing below for your information copy of D.O. letter No. 7-7/66-D dated 13th June, 1966 from Shri S. K. Borkar, Drugs Controller (India), New Delhi, addressed to me.

"I am to refer to your letter No. 386A/6640/65-66 dated the 19th May, 1966 with regard to the shortage of X-ray Contrast Media in the country. X-ray contrast media, viz. Urografin and Biligrafin have no doubt been in short supply in the country for some time past. The reason for this shortage, as you are aware, was due to the foreign exchange difficulties and established importers could not accommodate these items within their limited ceiling. Whereas this Directorate has been recommending *ad hoc* licences for this purpose admittedly even such licences, whenever they were issued, were not enough to meet the requirements. With a view to relieve this situation, this Directorate has been exploring alternative sources from rupee payment areas from where we could obtain these. A source has now been located in East Germany. As samples from this source were subjected to clinical trials and found to be satisfactory in all respects M/s. Jagson Pal and Co., 1520, Bhagirath Palace, Delhi were granted an import licence to import X-ray constrast media, viz., 'Visotrast' and 'Adipiodone' which are identical in composition to 'Urografin' and 'Biligrafin' from East Germany. Both these items, viz., 'Visotrast' and 'Adipiodone' had been subjected to extensive clinical trials at Delhi institutions viz. Safdarjang Hospital, Irwin Hospital and All-India Institute of Medical Sciences, etc. The investigators were satisfied as to the performance of these contrast media used for urography and cholecystography. The first instalment of this contrast media has now been imported by the firm and more consignments are expected to arrive soon. It will be appreciated if you will apprise the members of your Association about this new source of supply. With regard to the supply of Telepaque, it is understood that some imported consignments were missing from the docks for some time as a result of which there was a shortage of stocks. It is understood from the firm that supplies have now been made available to all parts of the country. The supply position regarding Bioloptyl and Solu Biloptyl, is being ascertained. 'Barium Sulphate' of X-ray grade is available with M/s I.C.I., Bombay. Parties who require this drug be advised to contact the firm and its branches."

FIRST ORIENTATION COURSE IN PSYCHIATRY

Announcing the First Orientation Course in Psychiatry to be held under the auspices of the I.M.A. on regional basis, the following circular (Circular No. F.20(19)/35/65-66 dated 28-6-66) from the I.M.A. Headquarters, New Delhi, has been issued by Dr. P. C. Bhatla, Hony. Joint Secretary, I.M.A. to the Hony. Secretaries of all State/Territorial Branches of the I.M.A. Copies of the circular have been forwarded to (1) the members of the Working Committee, I.M.A., (2) Dr. A. K. Roy (Calcutta) Hony. Joint Secretary, and (3) Dr. M. A. Panwala (Bombay), Hony. Assistant Secretary, I.M.A. with a request to the last two to finalise the programme in consultation with Bengal and Bombay State Faculties respectively of the I.M.A. College of General Practitioners. The circular reads as follows:

At the instance of the Director General of Health Services, Government of India, New Delhi, as per his letter No. 12-2/66-MG dated 7 May 1966, we got in touch with the Indian Psychiatric Society. We have finalised the programme of the course to be held at Delhi a copy of which I am enclosing for your information.

It has been proposed to organise the courses on regional basis and the following courses have been suggested:

Venue		*Participants*
Delhi	...	Members from the States of U.P., Punjab, Rajasthan, Himachal Pradesh and Jammu and Kashmir.
Bombay	...	Members from the States of Maharashtra, Gujarat and Madhya Pradesh.
Calcutta	...	Members from the States of Bengal, Assam, Bihar and Orissa.
Bangalore	...	Members from the States of Madras, Kerala, Andhra Pradesh and Mysore,

The first course in the series is scheduled to be organised at I.M.A. House, New Delhi, with participants from the branches as detailed above. The Faculties of the College at the other places of the course would help in organising the course on a similar pattern, on behalf of the College.

The number of participants at each course would be about 20 or so. The State Governments concerned will be approached to send official participants whose T.A. and D.A. will be the responsibility of the State Governments. Similarly the D.G.A.F.M.S. will also be approached to depute doctors to attend these courses.

We shall try to organise these courses on regional basis for the present and as we gain experience, we shall have refresher/orientation courses at local branch level wherever facilities exist.

We would be approaching the Government for financial assistance, if necessary.

Please let us have the detailed programme along with the dates, etc., of the Regional Course so that the branches in the region be informed accordingly.

Orientation Course in Psychiatry for General Practitioners, Delhi

VENUE: I.M.A. HOUSE, INDRAPRASTHA MARG,
NEW DELHI 1
AUGUST 29, 30 AND 31, 1966

August 29, 1966:

9-30 A.M.	...	Inauguration by D.G.H.S. or A.D.G.S.
10-00 A.M.	...	(1) Introduction to Psychiatry—Dr. P. B. Buckshey
11-00 A.M.	...	(2) General Practitioner as a Psychiatrist—Dr. J. S. Neki
12-00 NOON	...	(3) Doctor-Patient Relationship—Dr. D. Satyanand
2-30 P.M.	...	(4) Why Body is a Scapegoat for Psychiatric Symptoms?—Dr. E. Hoch
3-30 P.M.	...	(5) Psychiatry Outside the Mental Hospital—Dr. K. Chatterjee
4-30 P.M.	...	(6) Role of Family Doctor in Crisis Situations—Col. Kirpal Singh

August 30, 1966:

9-30 A.M.	...	(1) Forensic Psychiatry — Dr. K. C. Dube
10-30 A.M.	...	(2) Panel Discussion—"Psychiatric Emergencies in General Practice Including Case Sheets from Participating Doctors".
2-00 P.M.	...	(3) Hospital Clinics including demonstration of physical methods of treatment of psychiatric patients and crisis situations. —All India Institute of Medical Sciences, Department of Psychiatry, (Out-Patient Department), Room No. 206, (Entrance on Mehrauli Road), New Delhi.

Attending physicians and their staff: (a) Dr. D. Satyanand, (b) Dr. A. S. Mahal, (c) Dr. J. S. Teja, (d) Mr. G. Prabhu, (e) Miss S. Dube, (f) Miss K. Mathrani.

August 31, 1966:

9-00 A.M.	...	(1) Early Detection of Mental Disorders in General Practice—Dr. J. S. Neki
10-00 A.M.	...	(2) Anxiety State and Obsessional Neurosis—Dr. P. B. Buckshey
11-30 TO 1-30 P.M.		(3) Hospital tour, including demonstration—Willingdon Hospital, New Delhi.

Attending physicians and their staff: (a) Dr. E. Hoch, (b) Dr. A. K. Chatterjee, (c) Dr. R. C. Jindal, (d) Dr. S. Dayal, (e) Dr. O. Kashyap, (f) Miss Indra Ahuja.

3-00 P.M.	...	(1) Uses and Abuses of Psychiatropic drugs—Dr. R. C. Jindal
4-00 P.M.	...	(2) Organic Conditions Causing Mental Symptoms—Col. Kirpal Singh
5-00 P.M.	...	Summary and assessment of the usefulness of the Course.
5-30 P.M.	...	Films: (a) The World of Schizophrenic, (b) Drug Therapy in Psychiatry.

Guest Lecturers

1. Dr. P. B. Buckshey—Directorate of Psychological Research, H-164, Defence HQ., New Delhi-11.
2. Dr. J. S. Neki—Associate Professor of Psychiatry, Medical College, Rohtak.
3. Dr. D. Satyanand—Professor of Psychiatry, All India Institute of Medical Sciences, Ansari Nagar, New Delhi-16.
4. Dr. E. Hoch—Visiting Professor of Psychiatry, Lady Hardinge Medical College, New Delhi.
5. Dr. A. K. Chatterjee—Psychiatrist, Willingdon Hospital, New Delhi.
6. Col. Kirpal Singh—Deputy Director, Directorate of Psychological Research, H-164, Defence HQ., New Delhi-11.
7. Dr. K. C. Dube—Superintendent, Mental Hospital, Agra. (U.P.).
8. Dr. R. C. Jindal—Department of Psychiatry, Willingdon Hospital, New Delhi.

Medical Conference

XXXIII PUNJAB STATE MEDICAL CONFERENCE KARNAL : : 1965

The 33rd Punjab State Medical Conference was held in the Civil Hospital, Karnal, on December 4-5, 1965 under the auspices of the Karnal Branch of the Indian Medical Association. The Conference was inaugurated by Shrimati Om Prabha Jain, Health Minister, Punjab and presided over by Dr. Harbans Singh Narang. The Scientific Session organised on this occasion was inaugurated by Dr. Karam Singh Grewal, Professor of Orthopaedics, Medical College, Amritsar. The Exhibition on family planning, health, pharmacological products, surgical appliances, blood banking and dairy products was inaugurated by Sri R. S. Ch. Partap Singh of Karnal.

INAUGURAL SESSION

The two-day conference began in the morning of 4-12-65 following the singing of the National Anthem and observance of silence for two minutes in paying homage and praying for peace to the departed souls of the Jawans who laid down their lives during the hostilities with Pakistan. The Organising Secretary, Dr. Mohinder Singh Lamba, announced that on account of the National Emergency, it had been decided to observe austerity and to fully co-operate with the Government in observing the Guest Control Order.

In her speech Shrimati Om Prabha Jain, stressed the important role that the Indian Medical Association could play in the implementation of the various health plans of the country, especially, the Family Planning Programme. She said that she was not happy about the membership strength of I.M.A. and as the first step towards having an effective voice in the country's health and medical affairs she would like to request them to raise this strength.

Dr. T. N. Mathur, Chairman of the Reception Committee, welcomed the distinguished guests and the delegates. In course of his address he said that medicine consisted of science, wisdom and technology and these should be hand in glove with each other. He said that the doctors should keep pace with the latest developments in the field of medicine and should have a human approach to their patients. He laid stress on the study of Epidemiology and Social and Preventive Medicine. He emphasised that all efforts should be made to raise the membership of the Indian Medical Association so as to make it cent per cent representative of the medical profession in India as is the case in other countries and exhorted the doctors to join the Association one and all.

Dr. Harbans Singh Narang, President of the conference, in his Presidential Address emphasised the need for creating unity and strength of the I.M.A. by raising the membership of the Association. He appealed to the members saying that in this hour of National Emergency the doctors should shoulder all the responsibilities that might lie upon them and discharge their duties as might be assigned to them by the Government for helping the Civil Defence. He called upon the Government to exempt the medical profession from the sales tax since a doctor was never a manufacturer and his dispensation was not a saleable commodity in the market. Incidentally he pointed out that the Government of Madras had exempted the noble profession of healing from the sales tax. In order to improve the situation as regards the rural medical relief he suggested that honorary doctors be appointed in the rural dispensaries and retired hands be encouraged to settle in villages by the offer of an incentive that they would be paid Rs. 3000/- or so per annum. He expressed his desire that the office of the State Branch should be located in the capital of the State and requested the Government to ear-mark a site for housing the office of the I.M.A. at Chandigarh and also to nominate a nominee of the I.M.A. to the Punjab Legislative Council.

Dr. A. D. Grover, Hony. Secretary, Punjab State Branch, then read out the annual report of the activities of the Association for the year 1964-65. The salient points of the report were that six new branches had been formed and refresher courses besides a special Emergency course had been arranged. Members all over the State had volunteered their services for the Civil Defence work. The services rendered by the Amritsar Branch of the I.M.A. during the Pakistani air attacks were specially mentioned in the report.

Dr. Karam Singh Grewal in his address stressed the importance of the humane qualities of a doctor and his sympathetic behaviour towards his patients. He emphasised that careful history taking and thorough examination of the patient were of fundamental importance in winning his confidence and successfully treating him.

Following the Inaugural Session, Dr. M. S. Lamba released the souvenir brought out on the occasion. Copies of the souvenir were distributed to the delegates, guests and the members present.

OPEN SESSION

The Open Session of the conference was held on 5-12-65 where several resolutions on vital issues concerning the profession in the State were discussed and passed.

Dr. Chhabil Das, Hony. State Secretary, I.M.A. College of General Practitioners presented the annual report of the activities of the College of General Practitioners and it was unanimously adopted.

In the concluding session Dr. Mohinder Singh, Organising Secretary, proposed the vote of thanks to the Chief Guest and other distinguished guests, the delegates and the visitors, and all those who had contributed in various ways to the success of the conference.

SCIENTIFIC SESSION

The Scientific Session commenced on 4-12-65 and continued through 5-12-65. In different sittings talks were given on the following subjects: 1. Management of Leukaemias and Reticulosis by Dr. Harjit Singh, Patiala. 2. P.U.O. by Dr. Harcharan Singh, Amritsar. 3. Oral Diagnosis by Dr. Ram Partap, Chandigarh. 4. Diarrhoeas and Dehydration in Children by Dr. Mrs. T. Paul, Karnal. 5. Compression Ischaemia of Limbs by Dr. M. D. Aggarwal, Patiala. A special session on War Injuries was organised and the following lectures were delivered in that session:

1. Injuries due to Conventional Weapons of War and 2. Atomic Warfare and Radiation Injuries by specialists from Military Hospital, Ambala. 3. Prevention and Treatment of Psychiatric Casualties during War Time by Dr. Vidya Sagar, Amritsar. 4. Role of Anaesthetist in National Emergency by Dr. M. S. Kohli and Dr. R. S. Manku, Patiala.

Symposia were held on the following subjects:

1. Abdominal Emergencies: Participants—Dr. I. C. Pathak and others from Post Graduate Institute, Chandigarh. 2. Urinary Tract Infections: Participants—Dr. Warayam Singh and others from Medical College, Rohtak. 3. Cardiac Emergencies: Participants—Dr. Chander Prakash and others from Medical College, Patiala.

In the evening on 4-12-65 a Variety Entertainment programme was presented by Dr. J. R. Kshettry and Mrs. Kshettry. About 1000 delegates and guests who attended the show highly appreciated the performances.

The State Council met 4-12-65 night and again on the following morning.

RESOLUTIONS

The following resolutions were passed in the Conference:

1. *Admission to Medical Colleges*—While appreciating the decision of the Punjab Government to admit into the medical colleges students from the States outside Punjab, this Conference earnestly urges upon the State Government to see that the students from the Punjab who come up to the prescribed standard be taken first and only the remaining vacancies, if any, be filled up from amongst those coming from other States.

2. *Amendment of Medical Degrees Act*—This Conference urges upon the present Punjab Government to make the amendment of Medical Degrees Draft Bill an Act in the next session of Punjab Vidhan Sabha.

3. *Sales Tax Act*—This Conference urges upon the Punjab Government that a qualified doctor, who uses all the medicines and injections for his own patients and does not function as a chemist should not be considered as a dealer and a manufacturer and he should be exempted from the provisions of Punjab Sales Tax Act on the same lines as has been done by the Madras Government and Bombay Government for qualified doctors.

4. *Registration for Obtaining Narcotic Drugs*—Since all qualified doctors are already registered with the State Medical Council, so there should be no double registration of doctors with the Excise and Taxation Departments obtaining the narcotic drugs.

5. *Pay Scales of Doctors in Government Service Who Have Been Debarred from Private Practice*—The 33rd Punjab State Medical Conference strongly urges upon the Punjab Government that the doctors in Government services whose private practice has been stopped, should be given the pay scales as recommended by the I.M.A. (Centre).

BRANCH NOTES

Bengal State Branch — Under the auspices of the State Branch the Annual State Convention of the Insurance Medical Practitioners (I.M.P.s) in Employees State Insurance (Medical Benefit) Scheme was held on 14-6-66 at Calcutta in the spacious hall of the Mahajati Sadan. The Convention which discussed the working of the E.S.I. Scheme in its various facets in so far as the I.M.P.s in the State were concerned was attended by about 600 doctors representing all areas covered by the Scheme. Sri P. C. Sen, Chief Minister, West Bengal, inaugurated the Convention and Major K. K. Ghose, President, Bengal State Branch, took the chair. Among others who graced the occasion by their presence were Sm. Purabi Mukherjee, the State Health Minister, Sri Rabindra Lal Sinha, State Education Minister, Sri B. R. Gupta, Secretary to the State Health Department, Sri S. Mallik, Deputy Director of Health Services, Dr. R. N. Guha Majumdar, Special Officer in-charge of E.S.I. Hospitals and Dr. B. C. Basak, A.M.O.

Inaugurating the Convention, the Chief Minister referred to the memorandum on the E.S.I. Scheme earlier submitted by the I.M.A. Bengal State Branch and expressed the hope that apart from criticisms and apportioning of responsibilities the Convention would come out with some practical suggestions to improve the working of the scheme. Tracing the progress of the scheme in the State, the Chief Minister said that initially introduced in 1955 in the city of Calcutta and the district of Howrah the scheme had now been extended to almost all the districts of the State and covered nearly 33 lakh persons—8·25 lakh insured individuals and 24·75 lakh members of insured families. He said that the magnitude of the scheme could be judged from the fact that there were 1800 I.M.P.s on the panel, 296 approved chemists' shops, 302 specialists' units, 963 general beds, 370 TB beds and 9 ambulances. The Chief Minister said that the Tripartite Committee set up in 1963 under the chairmanship of Mr. C. R. Pattabhi Raman to review the working of the E.S.I. Scheme had recommended the merger of the E. S. I. and Employees' Provident Fund Schemes. The Committee had also suggested that the E. S. I. Scheme should cover all factories and establishments employing 10 or more people. The Committee, however, was not in favour of extending the scheme to mines and plantation workers for the present.

Sri P. C. Sen, Chief Minister, West Bengal, Inaugurating the State Convention of Insurance Medical Practitioners

Sitting (*L—R*) : Sm. Purabi Mukherjee, Minister for Health, West Bengal, and Maj. K. K. Ghose, President, I.M.A. Bengal State Branch. Dr. Mrinal Nandi, Hony. Secretary, I.M.A. Bengal State Branch, standing behind

Sri Rabindra Lal Sinha, Minister for Education, West Bengal, Addressing the Convention

Sitting (*L—R*) : Dr. A. K. Roy, Hony. Joint Secretary, I.M.A., Dr. B. C. Basak, A.M.O., E.S.I., Maj. K. K. Ghose, President, I.M.A. Bengal State Branch and Dr. Debesh Mukherjee, Convener, E.S.I. Standing Committee, I.M.A.

Sri Rabindra Lal Sinha, State Education Minister, in his speech emphasised the necessity of successfully working out this social security scheme. Dr. Debesh Mukherjee, Convener of the E.S.I. Standing Committee of the I.M.A., presented a report giving an account of the I.M.A.'s efforts for improving the Medical Benefit Scheme in general and the I.M.P.s' working conditions in particular. Dr. B. C. Basak, A. M. O., mentioned the improvements in the working of the scheme which his department had been able to make in recent months.

Dr. Mrinal Nandi, Hony. Secretary, I.M.A. Bengal State Branch, appealed to the I.M.P.s to unite under the banner of the I.M.A. and strengthen the hands of the Association to enable it to move effectively in the matter of redress of their grievances and to improve the services rendered under the scheme to the workers and their families.

Major K. K. Ghose, President, appealed to all concerned to come forward to make the scheme successful and thanked the doctors present for taking keen interest in the deliberations of the Convention.

The Convention adopted eleven resolutions on the various facets of the working of the E.S.I. (Medical Benefit) Scheme after lively discussions on them by a large number of delegates. In a resolution passed unanimously by the delegates the Convention urged upon the authorities to enhance the capitation fee to at least Rs. 30/- per family unit and Rs. 10/- per individual I. P. unit. In another resolution the Convention requested the authorities to arrange for speedy and satisfactory supply of medicines and adequate facilities for laboratory investigations, specialist's centre, ambulance service and hospital beds for treatment of insured persons. The other resolutions adopted in the Convention were on orientation of the I.P.s to the nature and limitation of E.S.I. medical benefit, on refresher course for the Insurance Medical Practitioners, on lack of adequate instructions to I.M.P.s and specialists regarding procedural details of the E.S.I. Scheme, on distribution and allocation of insured persons, on direct access to routine laboratory and x-ray investigation by the I.M.P.s, and on future provisions for the I.M.P.s in the form of provident fund and gratuity benefits. The Convention in a resolution demanded the privilege for the I.M.P.s in the State of a full holiday on Sunday as enjoyed by the I.M.P.s in Bombay.

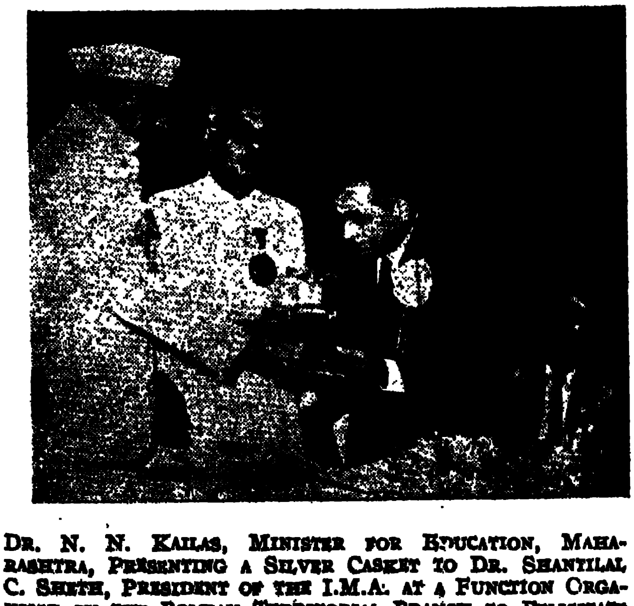
Those who moved and seconded the resolutions included Drs. Debesh Mukherjee, Salil Dutt, Naren Bhattacharjee, Ajit Kumar Roy, Pashupati Sinha, Amiya Chatterjee, Damodar Dutt, Sisir Sengupta, Girija Mohan Chatterjee, P. Chatterjee, Bibhuti Bhusan Lahary, Sujan Das, D. B. Chatterjee, Kanai Chatterjee, Mihir Mukherjee, Gopal Das Nag, Sudhakar Sett and Panchu Gopal Chatterjee.

Bombay Territorial Branch—On 2-4-66 shortly after the formal inauguration of the XI Bombay Territorial Medical Conference at the Birla Matusri Sabhagar, Bombay, a function was held to felicitate Dr. Shantilal C. Sheth, President, Indian Medical Association. Dr. M. A. Panwala, President of the branch, occupied the chair.

Speaking about Dr. Sheth, Dr. Panwala said that he was well-known to the medical profession all over India for his invaluable services in the cause of medical education and the medical profession in India. In token of his unique services the members of the I.M.A. had elected him President of the Indian Medical Association casting in his favour the highest number of votes that a candidate for the Presidential office of the I.M.A. had secured so far. With these words Dr. Panwala requested Dr. C. L. Jhaveri, a senior member and an ex-Vice-President of the branch, to read out the felicitation address on behalf of Dr. N. N. Kailas, Deputy Minister for Education, Maharashtra.

The address began with an enumeration of the large number of medical institutions, academic bodies and professional societies with which Dr. Sheth was associated in various capacities. Recounting the many academic and professional distinctions which brought Dr. Sheth renown and recognition not only in India but also in foreign countries, the address described Dr. Sheth's election as President of the Indian Academy of Paediatrics and that of the Indian Medical Association as the crowning success of his medical career. The address recalled the fact that in spite of the exalted position that he held in important committees on medical education and research in the country Dr. Sheth found time to extend his selfless service to the stricken humanity. Paying tribute to Dr. Sheth as a distinguished student of medicine, a popular professor and a staunch advocate of the prestige and dignity of the medical profession, the address described Dr. Sheth's career as one of ceaseless efforts to instil in his students a healthy feeling of responsibility and self-reliance, to imbue his colleagues with a high sense of professional obligation and to provide inspiration to those interested in the constant improvement of medical education and relief.

Dr. N. N. Kailas, Deputy Minister of Education, who handed over to Dr. Sheth a beautiful silver casket containing the address, recalled Dr. Sheth's notable contribution to the cause of medical education, his meritorious services as a member of the State Medical Council, the Medical Council of India and different university bodies, and his effective representation on behalf of the profession at various international conferences. He wished Dr. Sheth a long and fruitful life for serving the cause of their motherland and the medical profession.


Dr. N. N. Kailas, Minister for Education, Maharashtra, Presenting a Silver Casket to Dr. Shantilal C. Sheth, President of the I.M.A. at a Function Organised by the Bombay Territorial Branch to Felicitate Dr. Sheth. Dr. M. A. Panwala, President, I.M.A., Bombay Territorial Branch standing in between

Replying to the felicitations, Dr. Shantilal C. Sheth thanked the members of the Bombay Territorial Branch for the honour done to him and said that he was one of them and what he had been able to do and achieve was due to the ungrudging cooperation he got from all of them. He assured them that he would always try his best to uphold the cause of the profession particularly in spheres such as the E.S.I. Scheme and medical education. He appealed to all doctors to strengthen the I.M.A. and thanked Dr. Kailas for the kind words spoken about him.

Ghatkopar Branch—At the annual general meeting held on 27-1-66 Dr. K. R. Gandhi, Hony. Secretary, placed the annual report for 1964-65.

The managing committee of the branch met nine times during the year. Starting with 126 members on the roll on 1-10-64, the branch had increased its membership to 133 on 1-10-65.

The branch was represented in the 40th All-India Medical Conference held at Kakinada in A.P. by Dr. P. D. Daftary and Dr. P. R. Velani. Dr. M. A. Panwala, President of the branch, attended the conference in his capacity as *ex-officio* Secretary of the Bombay Territorial Branch. As a member of the I.M.A. (Central) Working Committee Dr. Panwala participated in the deliberations of the Committee in its meetings held in December 1964 at Kakinada, in May 1965 at Delhi and in September 1965 also at Delhi. The prestige of the branch was enhanced by his appointment as a member of the E.S.I. Corporation by the Ministry of Social Security, Government of India and his election as a member of the Standing Committee of the E.S.I. Corporation. Six representatives of the branch were taken on the panel to advise the free supply of life-saving drugs by Drug Bank and Oxygen Service of the Rotary Club, Chembur.

The annual function of the branch, which was held on 28-2-65 at the Township Colony, Chembur, was graced by the presence of Dr. C. L. Jhaveri, Senior Vice-President of the I.M.A., Dr. Shantilal C. Sheth, Dr. Nagindas N. Shah, President, Bombay Branch, Dr. Arvind Shah, President, West Suburban Branch and Dr. B. G. Gore, Vice-President, Mulund Branch among others. The annual function with its variety entertainment and other programmes was a success.

During the year a family planning programme was arranged in cooperation with the Demographic Centre, Chembur, at the Tata School of Sociology. The lectures and demonstrations were attended by many practitioners from Chembur and other places. With the cooperation of the Rotary Club of Chembur an oral polio vaccine programme was also arranged. The local people of Chembur took full advantage of this service and appreciated it. In cooperation with the Lion's Club of Chembur a mass miniature x-ray examination of local high school students was conducted.

The branch held 11 clinical meetings during the year. The speakers included Dr. V. N. Bagodia, O.P. Kapoor, B. D. Patel, P. B. Desai, S. J. Mehta, B. B. Yodh, B. S. Singhal, R. K. Gandhi, V. B. Athavale, D. K. Tank and R. C. Hansoti.

On the outbreak of hostilities in the wake of Pakistan's aggression on India the branch organised first aid medical posts, first aid classes and participated in other preparations for civil defence in close cooperation with the local civil defence authorities.

The above annual report as placed by the Hony. Secretary was unanimously passed. Following this, election of office-bearers for the year 1965-66 took place.

The following were declared elected: President—Dr. M. A. Panwala; Past President—Dr. P. D. Daftary (*ex-officio*); Vice-Presidents—Dr. H. C. Kinariwala and Dr. K. G. Phulwar; Hony. Secretary—Dr. K. R. Gandhi; Joint Secretaries—Drs. D. K. Tank, P. B. Badwaik and K. H. Udani; Treasurer—Dr. M. T. Matkar; Members of the Managing Committee—Dr. Miss. Chandraben L. Shah and Drs. R. G. Chudgar, I. S. Pratap, S. D. Mehta, K. H. Velankar, G. M. Gandhi and Manilal O. Shah.

Gujarat State Branch — Under the auspices of the State Branch the Gujarat State Faculty of the I.M.A. College of General Practitioners was formally inaugurated on 13-2-66 at Ahmedabad by Dr. Shantilal C. Sheth, President of the I.M.A. Speaking on the occasion, Dr. Sheth referred to the very important role the general practitioners were called upon to play in the country in general and in its rural areas in particular, where many of them were handicapped by the lack of opportunities to catch up with the recent advances in medicine. "In many parts of India there are no specialists and it is the general practitioner who is the sole custodian of the people's health", Dr. Sheth pointed out. "In order to raise the standard of general practice and put it in a very dignified place and to improve the status of general practitioners it is necessary to establish the College of General Practitioners in India," he said. Enumerating the various benefits that such a college can bring to the general practitioners, Dr. Sheth said that the College through its course of lectures and clinical demonstrations would not only keep them in continuous contact with the progress made in the science of medicine, it would also provide them instructions by different procedures on the various aspects of diseases in the various specialities of medicine, assist the newly qualified doctors with information and advice concerning premises, equipment and other matters, and be of use to those general practitioners who wished to carry out postgraduate studies. In addition, it would promote and coordinate research in general practice and encourage general practitioners to publish their observations.

Concluding, Dr. Sheth thanked the President and members of the Gujarat State Branch for offering him the opportunity to inaugurate the State Faculty of the College of General Practitioners and wished the College all success.

Jalgaon Branch — At the annual meeting held on 22-1-66 the following office-bearers were elected for the year 1965-66: President—Dr. S. B. Jhavar; Vice-President—Dr. H. Y. Bakre; Hony. Secretary—Dr. D. R. Kulkarni; Joint Secretary—Dr. A. R. Kotwal; Auditor—Dr. K. S. Panat; Members of the Executive Committee—Drs. A. R. Acharya, S. D. Athawale, V. B. Davalbhakta and P. G. Kulkarni; Representative to the Central Council—Dr. A. D. Pilay; Representatives to the Maharashtra State Council—Drs. D. R. Kulkarni, B. V. Kulkarni, A. N. Joshi and M. H. Sarode.

Kanpur Branch — A Refresher Course on War Injuries and Their Management was held under the auspices of the branch from 2-10-65 to 20-12-65. The following speakers spoke on different subjects; Dr. Tara Chandra on Concept and Misconcept of First Aid; Sq.Ldr. Dr. R. N. Gaur on Missiles, Rockets, Nuclear Bombs and Other Forms of Attack and on Classification of War Wounds; Dr. J. L. Razdan on Shock, Haemorrhage, Compression-Phenomenon; Dr. S. M. Chaudhary on Transfusions of Blood: Its Substitutes and Other Fluids—Technique and Complications; Dr. Y. N. Gupta on Methods of Immobilisation of Limbs, Splints, Plaster of Paris Techniques, etc.; Dr. T. N. Seth on Treatment of Wounds; Dr. R. S. Grewal on Tetanus, Gas Gangrene; Dr. C. P. Saxena on Arterial Injuries; Dr. R. L. Gupta on Traumatic Aneurysms; Dr. K. K. Bhatnagar on Head Injuries; Dr. D. S. Sardana on Facio-Maxillary Injuries and on Injuries to the Ear; Dr. A. K. Gupta on War Injuries of Spinal Column and on Fractures, Dislocation and Sprains; Dr. Gopal Krishna on Abdominal Injuries and on Injuries of G. I. Tract; Dr. Satya Nand on Injuries of Peripheral Nerves; Dr. R. L. Gupta on Injuries of the Chest; Dr. K. N. Mathur on Wounds of the Orbit; Dr. C. M. Singhal on Burns; Dr. J. Prasad on Management of Respiratory Emergency; Dr. Tara Chandra on Management of Cardiac Arrest.

Besides the above lectures a symposium on Family Planning was organised by the branch on 24-12-65.

On 10-11-65 a reception was accorded to the members of U.P. State Working Committee in the I.M.A. Hall.

On 13-11-65 the Director General of Family Planning, U.P. State, addressed a meeting of the members of the branch. Dr. H. P. Awasthi treated all present to tea.

On 1-12-65 a reception was given to Dr. S. C. Jain on his return from the U.S.A. Dr. Jain addressed the members on Recent Trends in Cardiovascular Diseases in the United States.

Monghyr Branch —The demise of Prime Minister Shri Lal Bahadur Shastri was mourned at a meeting of the branch held on 12-1-66. A resolution recalling the unique service rendered by Shri Shastri to the country during his brief tenure of office as Prime Minister and the leadership provided by him in the hour of crisis for the country was passed in the meeting.

An ordinary meeting was held on 29-1-66 under the chairmanship of Dr. N. Hassan at the residence of Dr. S. Banerjee. At the outset a discussion took place on a resolution to be tabled in the 3rd Monghyr District Medical Conference at Begusarai. The resolution stated that Monghyr District Medical Conference Committee be requested to pursue the resolutions passed in the previous two conferences.

The meeting considered the question of providing financial relief to the family of any member of the I.M.A. in Monghyr District put to difficult financial position in the event of the death, permanent disability or any other calamities befalling the member. The meeting then adopted a resolution proposing the formation of a Relief Fund for the benefit of the members and their families in the aforesaid eventualities and suggesting ways and means to make the scheme successful.

The Hony. Secretary next placed before the members a tentative programme for the 3rd Monghyr District Medical Conference. He also informed the members that payment of Rs. 500/- had been made to the Municipality for securing absolute right of the branch over the plot of land on which its building stood.

Following this, Dr. K. P. Mitra gave an interesting talk on Future of Man. Dr. S. Banerjee, the host, entertained the members to refreshments. The meeting closed with a vote of thanks to the chair and the host.

An emergent meeting was held on 6-2-66 at the chamber of Dr. K. N. Sharma to consider the letter of resignation of Dr. R. N. Prasad from the office of the President of the branch. Dr. J. Bhagat took the chair. After discussing the matter thoroughly the house regretfully accepted the resignation. The name of Dr. Bhagat was proposed for the post of President. There being no other proposal Dr. Bhagat was declared elected as President of the branch for the remaining period of the session. The meeting came to a close after Dr. K. N. Sharma had entertained the members to refreshments.

North Howrah Branch — In an emergent general meeting held on 15-1-66 members condoled with a deep sense of sorrow and heavy heart the untimely and sudden demise at Tashkent of the beloved Prime Minister Shri Lal Bahadur Shastri who died for the cause of peace. They also prayed for the eternal peace of the departed soul and conveyed their heartfelt sympathy to Shrimati Lalita Shastri and the other members of the bereaved family.

Pathanapuram Branch —The following office-bearers for the year 1965-66 were elected unanimously at a meeting held on 26-9-65: President—Dr. K. S. George; Vice-Presidents—Dr. V. O. S. Pillai and Lt.Col. P. V. George; Hony. Secretary—Dr. K. S. Shankar; Joint

Secretary—Dr. A. G. John; Treasurer—Dr. S. Subramoniam; Executive Committee Members—Drs. J. L. Bhanu, Edward George, T. E. Varghese, M. Varughese Mathai and Dr. Mrs. Saramma Abraham; Representative to the Central Council—Dr. M. K. Mathew; Representatives to the State Council—Dr. David A. Bhanu and Dr. C. Krishna Menon; Representative to the State Working Committee—Dr. I. Varghese.

The first clinical meeting was held on 24-10-65 at the Lions Club Hall, Pathanapuram, 24 members attending.

Four new members were enlisted in the meeting. Dr. J. L. Bhanu Medical Superintendent, C. S. I. Mission Hospital, Kundara demonstrated some skiagrams and it was followed by a lively discussion. It was decided in the meeting to contribute liberally to the National Defence Fund and members volunteered to contribute a minimum amount of Rs. 10/- each. A sum of Rs. 260/- collected on this account was later sent to the Hony. Secretary, Kerala State Branch.

8 members of the branch attended the 9th annual conference of the I.M.A. Kerala State Branch held at Ernakulam on 31-10-65.

The second clinical meeting was held on 21-11-65 at Pathanapuram and 24 members attended. Dr. K. P. Nair, a surgeon from Quilon read a paper on Peptic Ulcer. Dr. Nair also distributed to the members a brochure entitled Treatment of Peptic Ulcer on the Basis of Clinical Stages, which presented a study based on his personal experience.

The third clinical meeting was held on 14-12-65 at Pathanapuram. 29 members were present. Dr. C. K. Ramachandran, Associate Professor of Medicine, Calicut Medical College, gave a talk on Hypertension and Its Management. The talk was followed by a lively discussion in which many members took part.

Pithoragarh Branch — At a meeting held on 15-9-65 in the B. D. Pandey Hospital, Pithoragarh and attended by 11 doctors it was resolved to form the local branch of the I.M.A. at Pithoragarh under the U.P. State Branch.

The following office-bearers were elected unanimously: President—Dr. Ved Ratna, Civil Surgeon, Pithoragarh; Hony. Secretary—Dr. M. R. Kharkwal; Joint Secretary—Dr. B. S. Mathur. It was decided to elect the other office-bearers in a subsequent meeting of the branch.

Pudukkottai Branch—The annual meeting was held on 31-10-65 in the x-ray department of the Government Town General Hospital. Members and guests numbering 20 attended the meeting which was presided over by Dr. M. Krishna Nair, Chief Medical Officer of the hospital.

At the outset, the election of office-bearers for the year 1965 66 was conducted by the President. The following were elected unanimously: President — Dr. M. Krishna Nair; Hony. Secretary and Treasurer—Dr. N. Thiyagarajan; Vice-President—Dr. T. A. Krishnamoorty; Representative to the State Council—Dr. V. K. Ramachandran;

Following the election of office-bearers the President introduced Dr. P. Krishna Menon, Hony. Orthopaedic Surgeon and Lecturer in Orthopaedics, Government Erskine Hospital, Madurai. Dr. Menon spoke on Some Observations on Treatment of Fractures. He stressed the importance of assessing the traumatic complications of the surrounding structures following a fracture in deciding the manner of treatment. With the help of illustrations and x-ray films he detailed the treatment of common fractures particularly on the elbow, ankle and femur. The advantages of using intramedullary pins, plates, Smith-Petersen pin and skeletal tractions were explained by him.

After a vote of thanks proposed by the Hony. Secretary the meeting came to a close.

A combined meeting of the Pudukkottai and Chettinad branches was held at the Town General Hospital, Pudukkottai, on 21-11-65 under the presidentship of Dr. M. Krishna Nair. 25 members were present.

The following clinical cases were presented:

1. A case of ruptured cornual pregnancy by Dr. Rukmani. 2. A case of closed injury abdomen with perforation of small gut by Dr. Bhaskaran.

Following the demonstration of cases several medical films by courtesy of Geigy & Co. Ltd. were shown to members.

The meeting came to a close after a vote of thanks proposed by the Secretary.

Punjab State Branch — The following were elected office-bearers of the State Branch for the year 1965-66: President—Dr. H. S. Narang, Chandigarh; Senior Vice-President—Dr. Shiv Charan Dass, Phillaur; Junior Vice-President—Dr. O. P. Verma, Ambala City; Hony. State Secretary—Dr. Ram Pratap, Chandigarh; Joint Secretary—Dr. S. L. Rawal, Chandigarh; Assistant Secretaries—Dr. Khushi Ram Mehra, Amritsar and Dr. Gian Singh Rikhi, Ambala City; Treasurer—Dr. Sain Dass Vohra, Amritsar; Organising Secretary—Dr. C. L. Jagga, Muktsar; Representative to the Central Working Committee—Dr. B. D. Aggarwal, Jullundur; Alternate Representative—Dr. Tej Pal Singh Chawla, Amritsar; Hony. Secretary for the College of General Practitioners—Dr. R. R. Laroia, Jullundur; Representative to the I.M.A. College of General Practitioners—Dr. Chhabil Das, Ludhiana.

Raebareli Branch—In an emergent meeting held on 12-1-66 the branch mourned the demise of Prime Minister Shri Lal Bahadur Shastri and passed a resolution placing on record its profound sense of sorrow at the sad and untimely death of the beloved leader and conveying heartfelt sympathy to Mrs. Lalita Shastri and other members of the bereaved family.

Raipur Branch—The demise of Shri Lal Bahadur Shastri was mourned on 11-1-66 at a joint meeting of the members of the branch and the staff of the D. K. Hospital, Raipur. A resolution was passed paying glowing tribute to the achievements of Shri Shastri during his brief tenure of office as the Prime Minister of India.

Rajasthan State Branch—The following were elected office-bearers of the State Branch for the year 1965-66: President—Dr. P. L. Rishi, Jaipur; Vice-Presidents—Dr. Tara Shanker Mathur and Dr. L. M. Sanghvi, Jaipur and D. K. D. Gupta, Bikaner; Hony. State Secretary—Dr. G. D Pareekh, Jaipur; Joint Secretaries—Dr. B. S. Ujjawal, Udaipur, Dr. B. K. Jajoo, Kotah and Dr. R. S. Mathur, Jaipur; Treasurer—Dr. M. L. Gupta, Jaipur; Auditor—Dr. G. N. Purohit, Jaipur; Representative to the Central Working Committee—D. G. Ojha, Bikaner; Alternate Representative—Dr. Tara Shanker Mathur, Jaipur; Members of the Working Committee—Drs. S. P. Wanchoo, Ajmer; Dr. K. N. Panjal, Jodhpur; Dr. Surveer Singh, Udaipur; Dr. M. L. Sharma, Dausa; Dr. D. R. Sharma, Bundi and Dr. Mrs. Shakuntala Saxena, Bikaner.

Tirunelveli Branch — The 36th annual meeting was held on 9 10-65 at Nellai Sangeetha Sabha, Tirunelveli Junction. Members and guests numbering 61 were present.

The business meeting commenced with Dr. G. Subramanian in the chair. At the outset the following office-bearers for the year 1965-66 were elected: President—Dr. T. V. Muthiah; Vice President—Dr. Srimati Mary John; Hony. Secretary and Treasurer — Dr. R. Subramaniam; Auditor—Dr. V. Sridhara Rao; Members of the Managing Committee—Drs. G. Subramanian, K. Rama Ayyar, S. M. Sundararajan, Capt. P. Vadivel and Dr. Mrs. S. Hymavathi; Representatives to the State Council—Drs. S. Chandrasekaran, R. Gopalan, Capt. P. Vadivel and K. Ramachandra Naidu.

A resolution moved by Dr. S. Chandrasekaran and seconded by Dr. K. Ramachandra Naidu to place on record the valuable services rendered by the outgoing office-bearers was carried unanimously.

The business meeting closed after the Hony. Secretary and Treasurer Dr. S. M. Sundararajan had presented the thirty sixth annual report for the year 1964-65, which was adopted.

The clinical meeting started with Dr. G. Subramanian in the chair. Dr. M. G. Prabhu, Professor of Medicine, Madurai Medical College and Physician, Erskine Hospital, Madurai delivered a lecture on Some Aspects of Hypertension.

The meeting closed after the members had a lively discussion on the subject.

A special meeting was held on 2-11-65 at the Government Headquarters Hospital, Palayamkottai. 20 members were present. Dr. T. V. Muthiah, President, took the chair.

The Hony. Secretary read out the circular from the Madras State Branch regarding the 19th State Medical Conference to be held on 13-11-65 and 14-11-65. The following members were elected delegates to the conference: Drs. T. V. K. Iyengar, M. S. Balasubramaniam, T. V. Muthiah, Ananthararamakrishnan and Dr. Mrs. C. A. Joseph

It was resolved to contribute Rs. 100/- to the Kashmir Relief Committee to relieve the distressed civilians there.

Dr. S. Chandrasekaran next presented for discussion a case of facial cellulitis and some cases of pyaemic abscess. Following this he dwelt on the treatment of Whitlow, large ulcers and cases of retention of placenta. Dr. K. Ramachandra Naidu and Dr. Mrs. C. A. Joseph took part in the discussion.

The Hony. Secretary proposed a vote of thanks to Dr. S. Chandrasekaran and the host Dr. T. V. Muthiah.

Tuticorin Branch — A meeting was held on 30-10-65 with Dr. P. S. Venkataraman in the chair. Dr. C. Venkataswamy, Vice-Principal and Professor of Ophthalmology, Madurai Medical College, introduced Dr. W. Buschmann of Humboldt University before the house. Dr. Buschmann gave a talk on the Ultrasonic Waves and Their Uses in the Diagnosis of Diseases. Following this Dr. Venkataswamy gave a talk on Headache. The meeting closed with a vote of thanks proposed by the Hony. Secretary Dr. M. P. Krishnan.

At a meeting held on 18-12-65 with Dr. S. Padmanabhan in the chair Mr. Madhava Sharma, Sub-Collector, Tuticorin, explained to the members the importance of the Gold Bond Scheme of the Government. Following this Dr. M. Krishnamurti gave a talk on Intestinal Obstruction. The meeting closed with a vote of thanks proposed by the Hony. Secretary.

Vijayawada Branch -A clinical meeting was held on 23-1-66 in the Medical Association premises with Dr. Mrs. T. Sarojini Ramarao, President in the chair.

Dr. D. J. Reddi, Principal, Jawaharlal Institute of Post Graduate Medical Education and Research, Pondicherry, addressed the members on Clinical and Experimental Studies of Carcinoma Cervix at Guntur.

Dr. Reddy dwelt at length on the incidence of carcinoma of cervix in different places in India and among different religious and socio-economic groups and summed up his studies with special reference to Guntur.

Expressing the view that carcinoma cervix was preventable to a great extent and that the private practitioner had an important role to play in its prevention, he stressed the need for the practitioner to educate his patient about social hygiene, sex education, sexual rest and small families and also against early marriages. He said that the Government should take up as in London the Papanicolaou's method of cytological examination of vaginal smears for an early clinical diagnosis of carcinoma and should also undertake circumcision of the male babies in the hospitals (as in America) as soon as they are born.

The meeting closed with a vote of thanks proposed by Dr. J. L. Narasimhamurthy, Hony. Secretary.

West Godavary Branch — The annual meeting was held on 22-1-66 in the Government Headquarters Hospital, Eluru, with Dr. V. Narasimha Rao, Senior Vice-President in the chair.

The Hony. Secretary presented the annual report for 1964-65 which was adopted.

The following office-bearers were then elected for 1965-66: President—Dr. V. Nagabhushanam; Vice-Presidents—Dr. V. Narasimha Rao and Dr. B. V. L. N. Raju, General Secretary—Dr. V. Paratpara Rao; Joint Secretaries—Dr. V. Venkata Rao, Dr. S. D. Mallikharjuna Rao and Dr. A. Kesava Rao; Representative to the Central Council—Dr. C. Ranga Rao; Representative to the State Council—Dr. K. Sreeramulu.

XLII ALL-INDIA MEDICAL CONFERENCE : : DHANBAD : : DECEMBER 1966

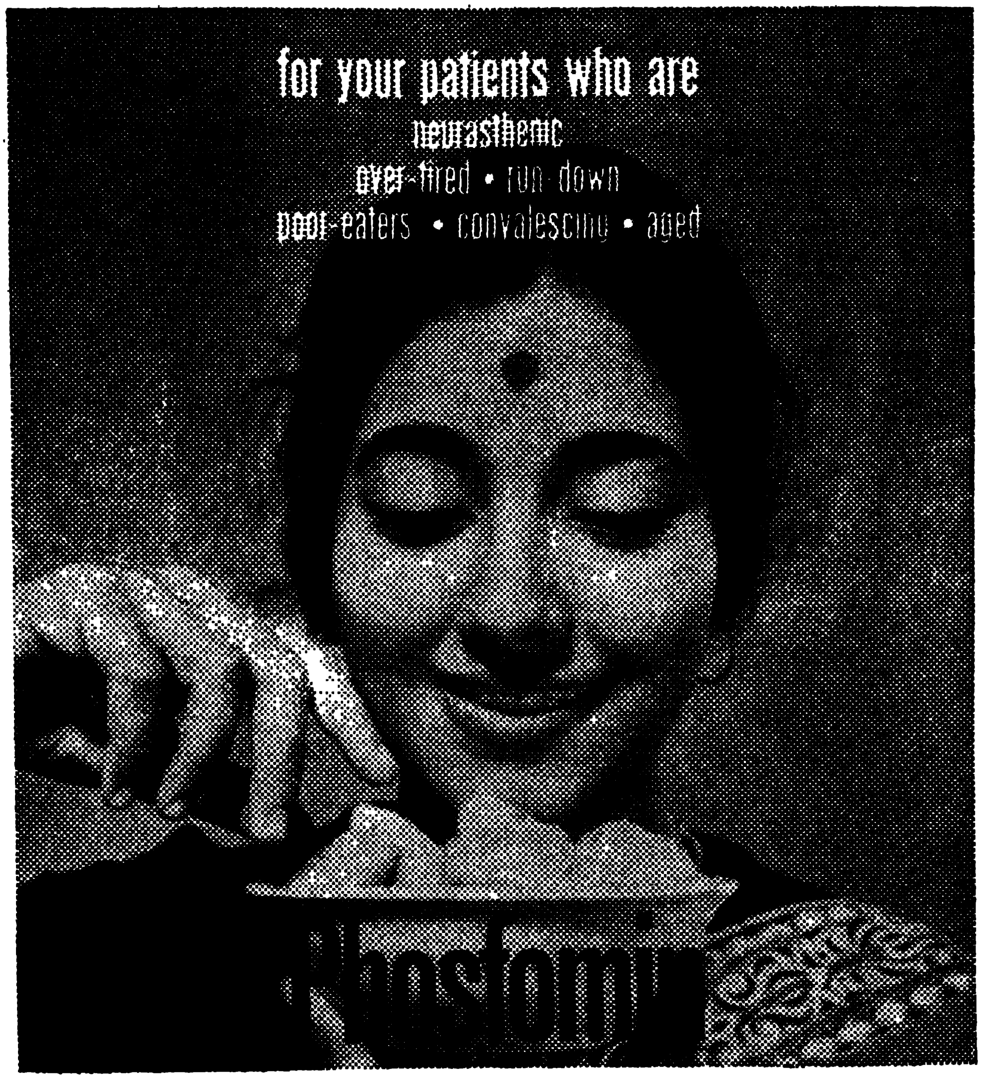
Dr. P. K. Dutta, Organising Secretary, the 42nd All-India Medical Conference, Dhanbad, has issued the following appeal:

It is our privilege this year to hold the 42nd All-India Medical Conference at Dhanbad, Bihar, on December, 28-30, 1966. We earnestly hope that this session of the All-India Medical Conference, which will mark the 42nd Annual Session of the Indian Medical Association, will provide an occasion for the biggest rally of members of the profession from all over India and will be a success like the previous ones.

We cordially invite all members of the I.M.A. and all delegates elected to the 42nd All-India Medical Conference to attend the same and contribute to its success.

We do believe that considering the enormity of the tasks before the Reception Committee at Dhanbad our brethren in all States and particularly those belonging to Bihar and its adjoining States, would extend their fullest cooperation and help to the committee. All enquiries and suggestions about the conference may kindly be made to Dr. P. K. Dutta, Organising Secretary, P.O. Jharia, Dhanbad, Bihar.

We also appeal to all members of the profession in general and to the members and the well-wishers of the I.M.A. in particular to enrol themselves as members of the Reception Committee on payment of a minimum fee of Rs. 25/- each. Lastly, we appeal to those members of the profession who are well placed in life to make liberal donations to the funds that are being raised by the Reception Committee to defray the expenses of the conference. All such fees and donations may kindly be forwarded to Dr. R. C. Mukherjee, Hony. Treasurer, 42nd All-India Medical Conference, Nayadih, Kusunda, P.O. Kusunda, Dist. Dhanbad, Bihar.



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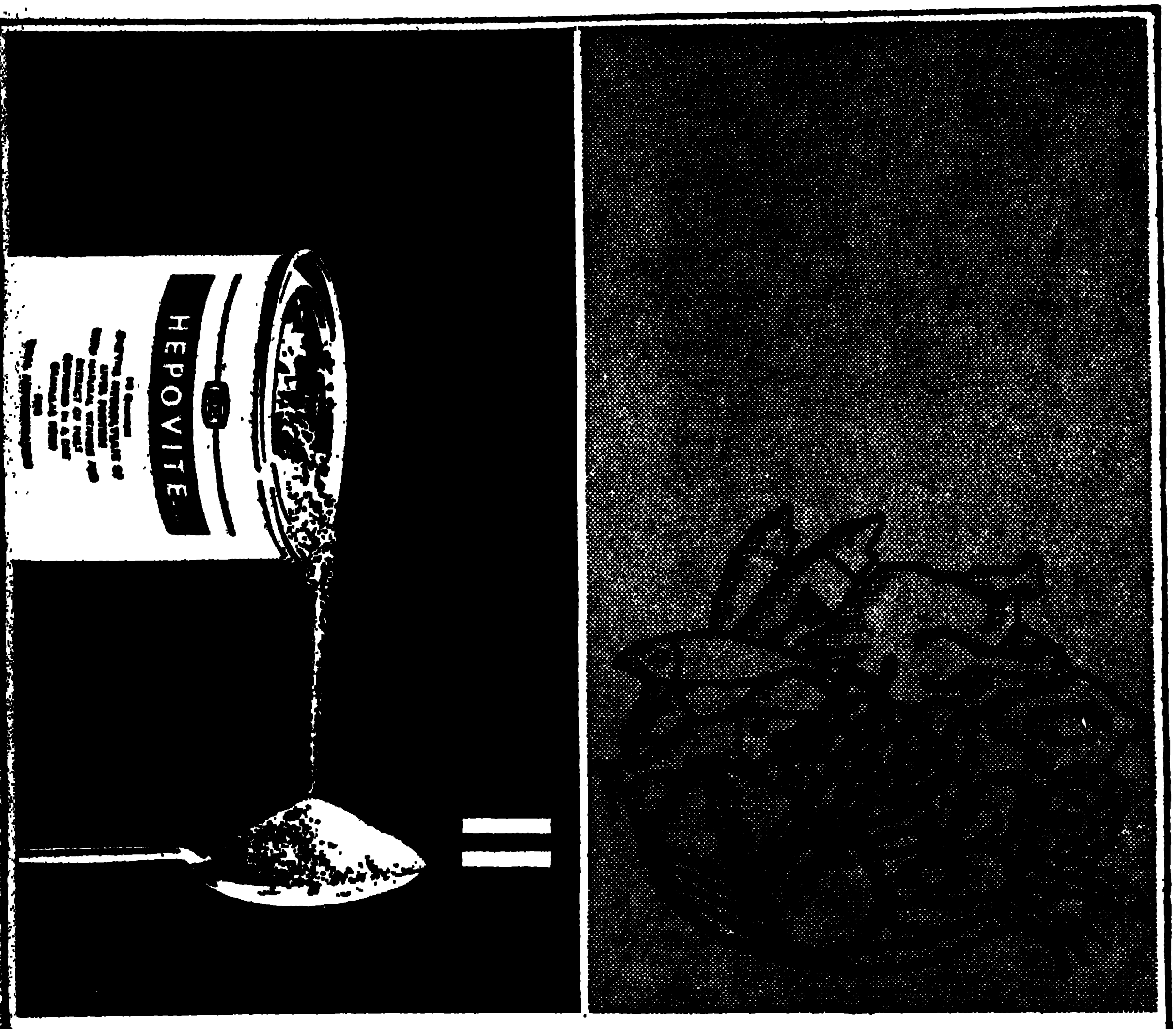

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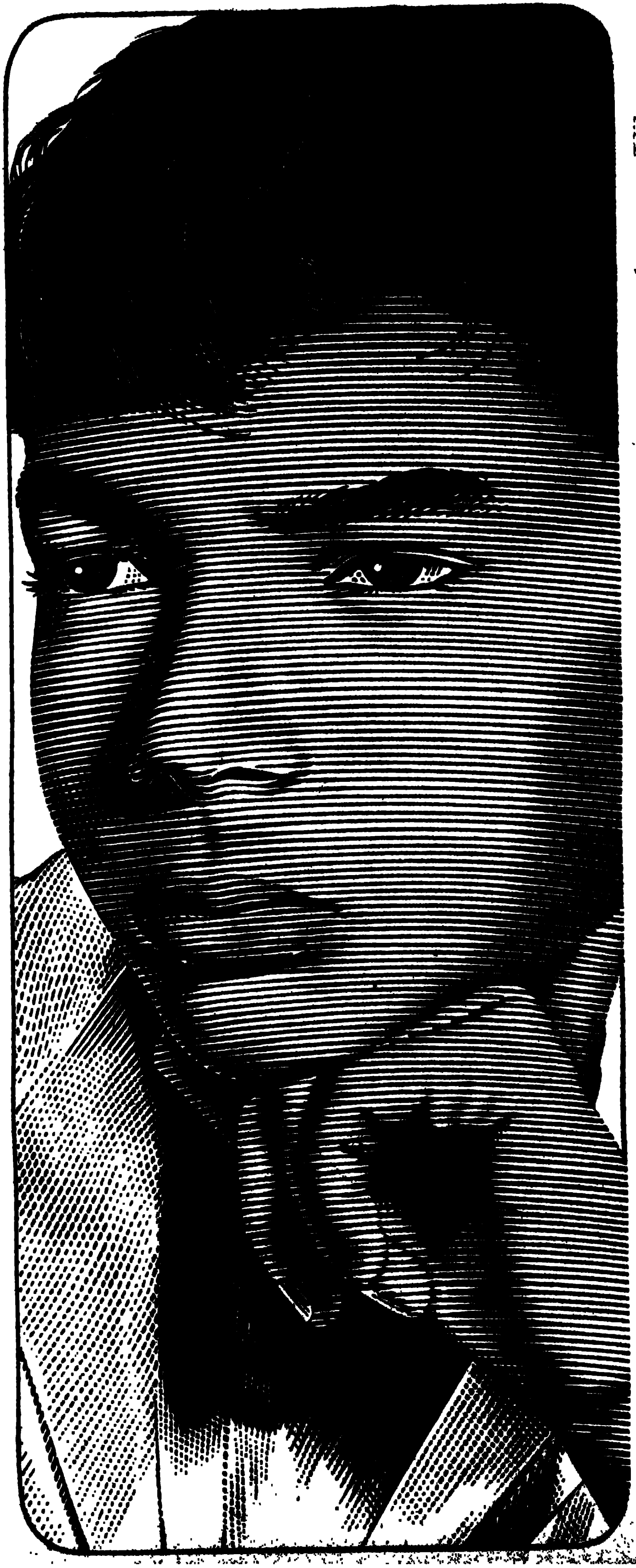

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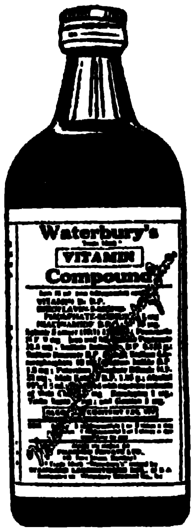

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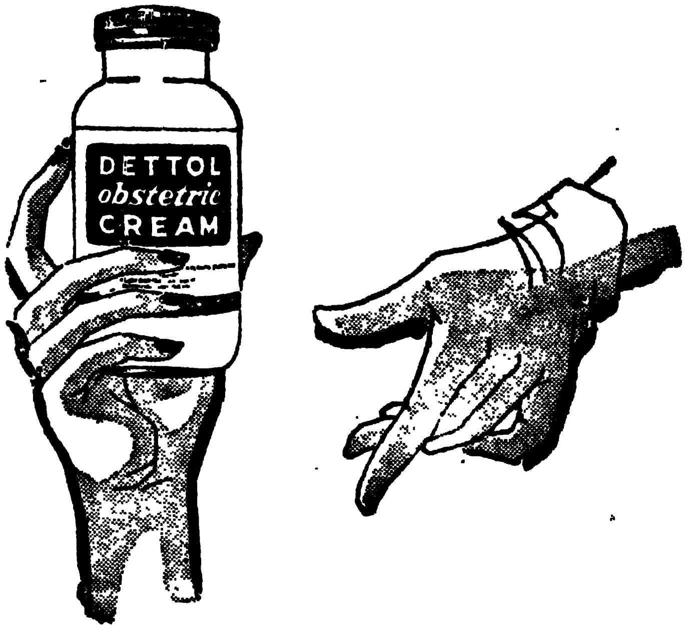

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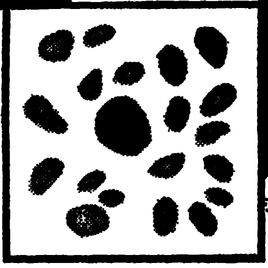

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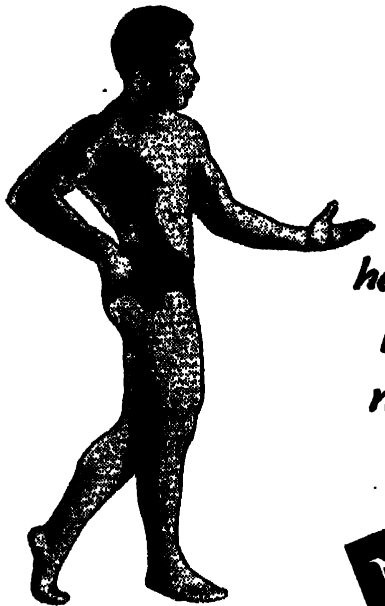

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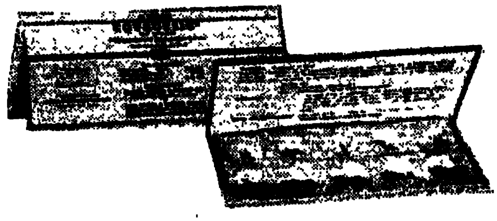

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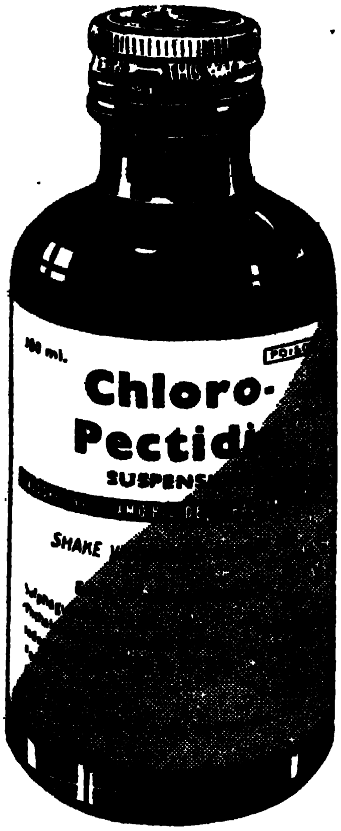

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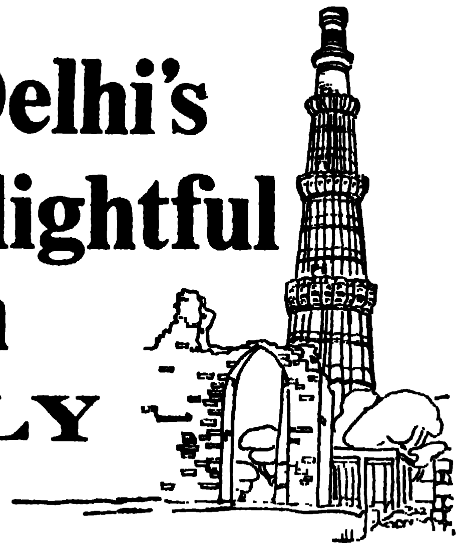

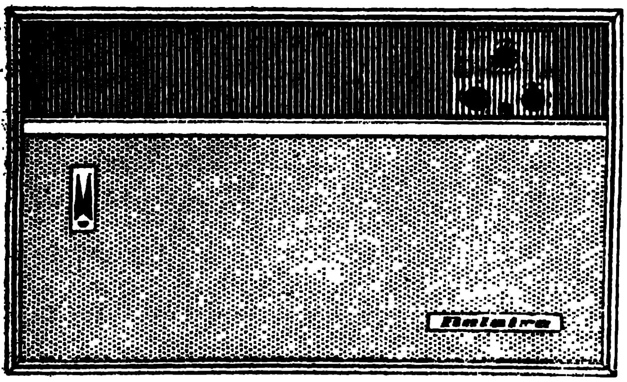

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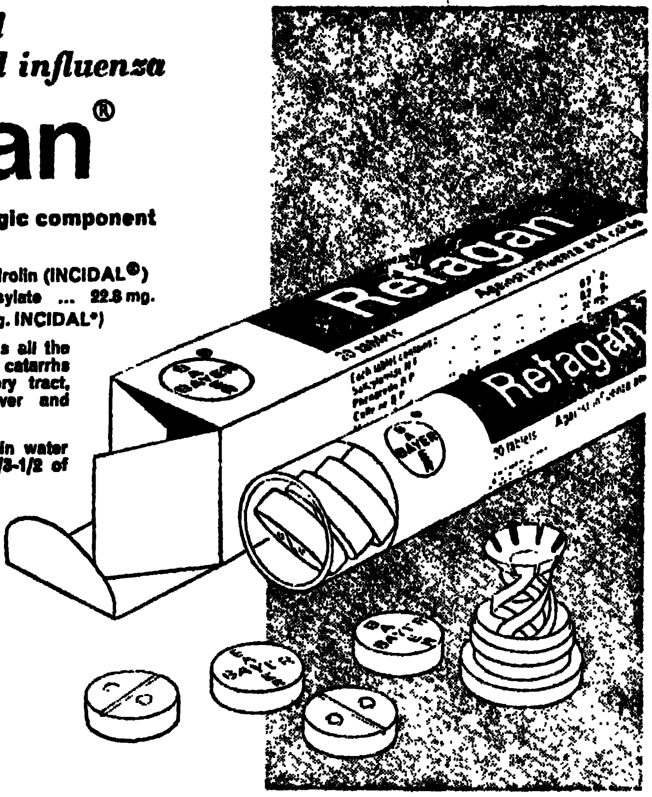

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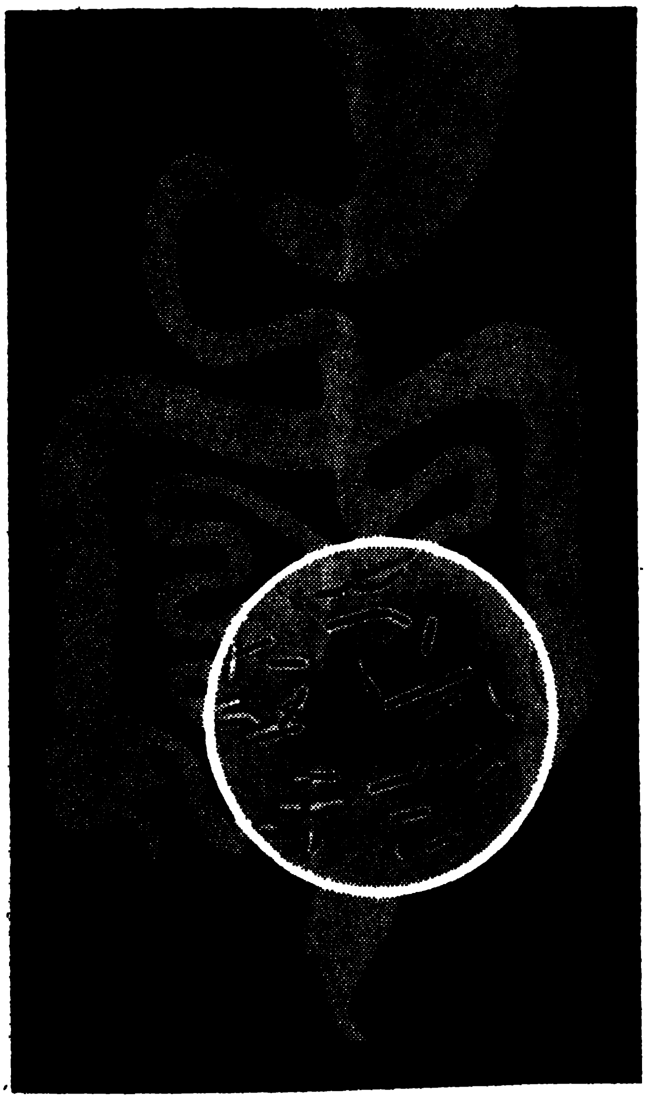

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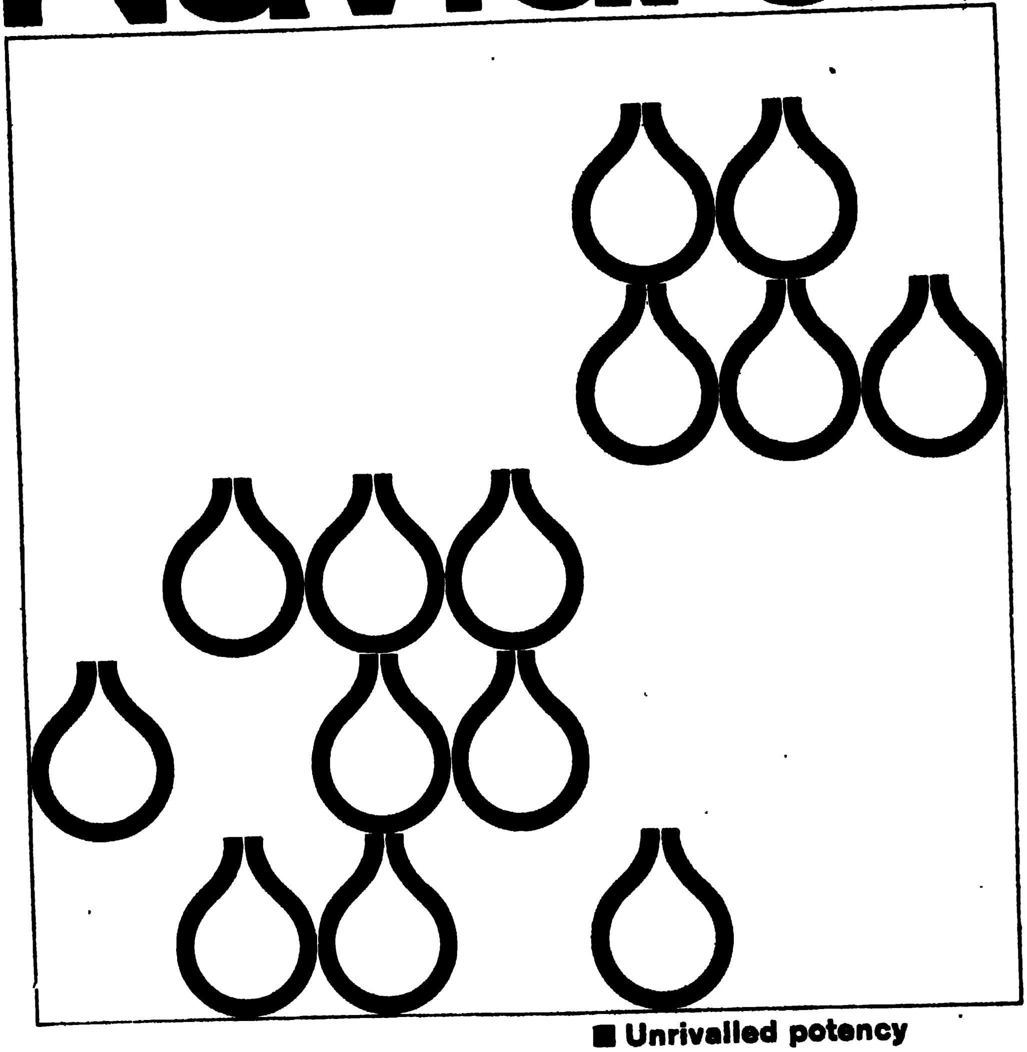

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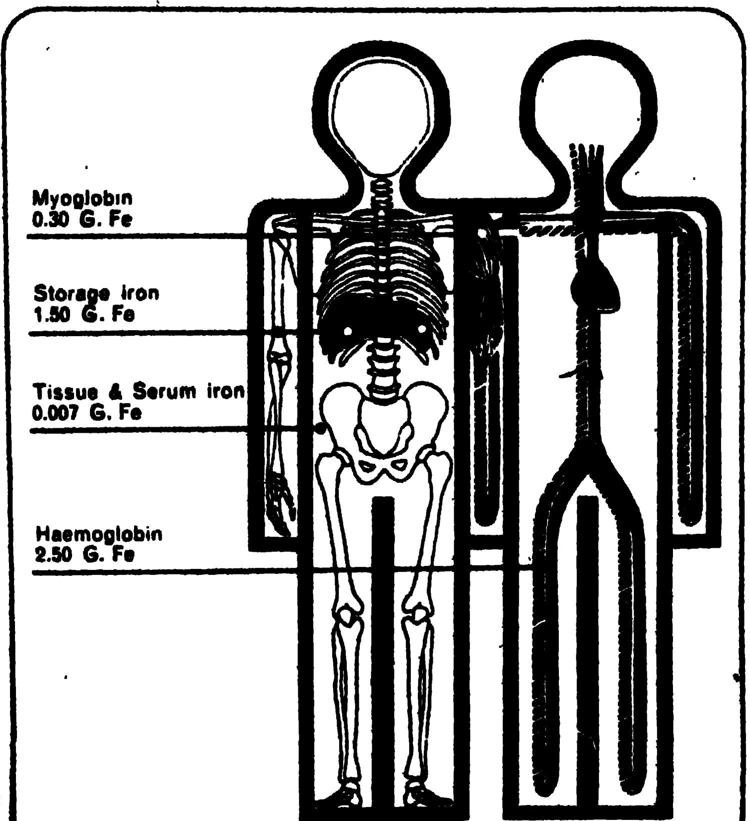

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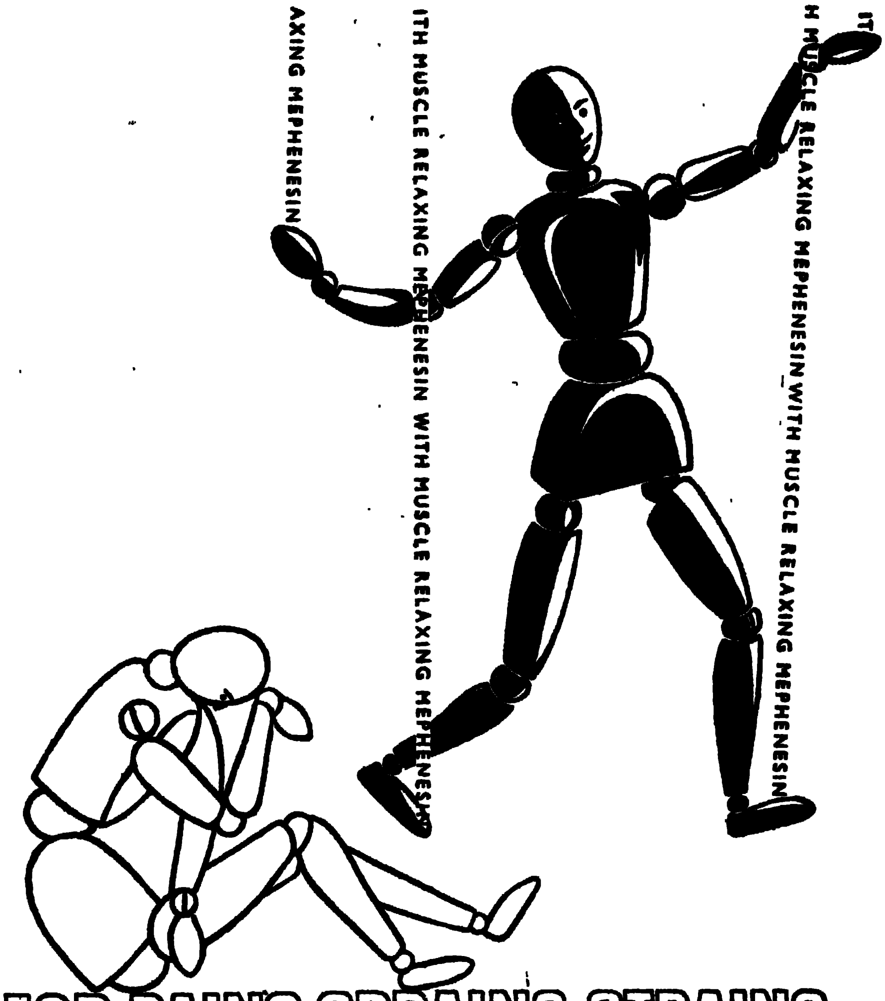
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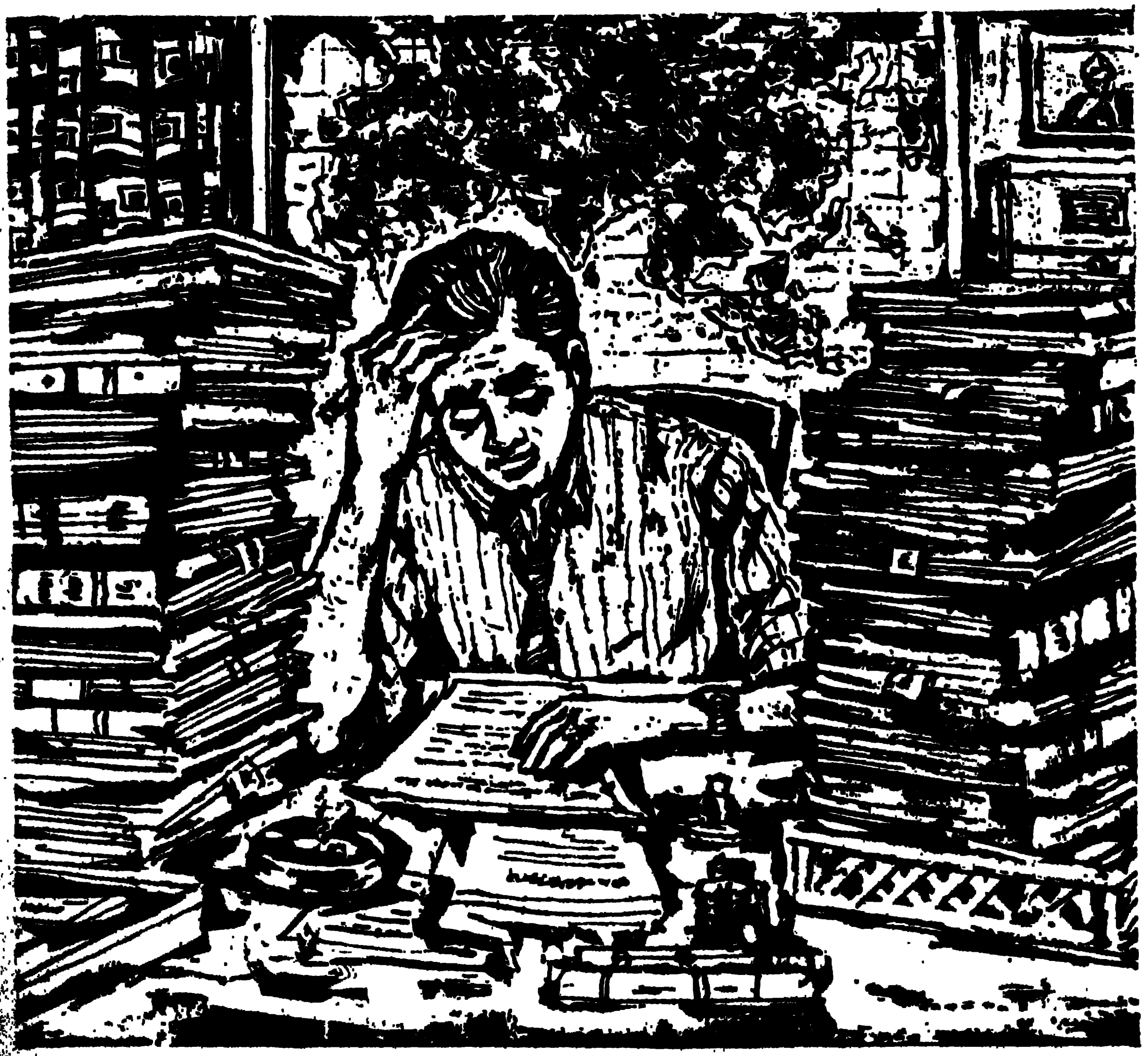

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AUGUST 16, 1966
CALCUTTA

ORIGINAL ARTICLES

BATTLE PHYSICAL EFFICIENCY TESTS IN THE INDIAN ARMED FORCES

A Clinical, Electrocardiographic and Biochemical Evaluation

R. P. MALHOTRA, M.R.C.P. (LOND.), *Professor of Medicine*
R. S. SACHAR, M.D., *Senior Lecturer in Medicine*, R. C. SHARMA, M.D., *Senior Lecturer in Medicine*
KUNDAN SINGH, M.SC., *Biochemist* AND M. SUDAN, LT.COL., A.M.C.
Department of Medicine, Medical College, and Military Hospital, Amritsar

There has been, during recent years, an increasing awareness of the potential hazards of strenuous physical exertion. Severe muscular effort can precipitate, even in apparently healthy subjects, ischaemic myocardial episodes, including myocardial infarction (Yater *et al.*, 1948 ; Master and Jaffee, 1952 ; Malhotra and Sehgal, 1962). Rumball and Acheson (1960) found electrocardiographic changes suggestive of myocardial anoxaemia in a fair percentage of healthy officers of the Royal Air Force after strenuous exercise. The risk becomes more real in view of the very high incidence of significant coronary atherosclerosis in young and admittedly healthy subjects (Enos *et al.*, 1953 ; Wig *et al.*, 1962).

Violent exercise is also known to produce marked, though transient, alterations in renal haemodynamics and urinary composition (Alyea and Parish, 1958). Howensteine (1960) and Arnett and Gardner (1961) reported haemoglobinuria and myoglobinuria with temporary anuria following some calisthenics in young healthy adults and in fresh recruits to the U. S. Marines. Marked muscular pain, limiting activity almost to the point of paralysis, may accompany these disturbances.

Strenuous exertion has also been reported to produce marked hypoglycaemia with its attendant effects, and a syndrome of "acute indisposition and collapse" (Jokl, 1943 ; Karpovich, 1953).

Since the Battle Physical Efficiency Tests in use in the Indian Armed Forces involve a strenuous degree of exertion, it seemed pertinent to study the clinical, electrocardiographic, and biochemical effects of these tests.

MATERIAL AND METHOD

The observations were carried out on 95 army personnel during the winter of 1963. The age, weight, and height of the subjects studied are shown in Table 1.

TABLE 1—SHOWING AGE, WEIGHT AND HEIGHT OF THE SUBJECTS STUDIED

		Age in years	Weight in Kg.	Height in cm.
Range	...	18-41	52·0-72·5	155·0-177·5
Mean	...	23·63	61·42	164·70
S.D.	...	± 4·61	± 4·52	± 4·68

The Battle Physical Efficiency Tests comprised the following in sequential order: (a) crossing a six-foot high wall, (b) jumping across a nine-foot wide ditch, landing on both feet, (c) climbing up, across, and then down a rope hung between two points twelve feet high and twenty feet apart, (d) carrying an approximately equal-sized adult on the back for 200 yards in one minute and 45 seconds, and, finally, (e) completing a two-mile run in 18 minutes. Customary to routine, all subjects underwent these tests after a light breakfast with full dress on, the equipment carried weighing 25 lb.

In 82 subjects, the pre-exercise blood pressure, pulse and respiratory rates, and a 12-lead electrocardiogram were recorded and the venous blood and urine samples collected 30 to 45 minutes after breakfast. Thirteen, however, had breakfast after the recording of these indices and the collection of samples, but before setting out for the tests. The physical indices and the 6-lead precordial electrocardiograms were re-recorded and the venous blood and urine samples re-collected within 15 minutes of the subjects' arrival at the investigating base after the completion of the tests. During this interval, the subjects awaiting investigations were kept warmed up by being made to run in the premises of the investigating centre.

The results of the pre-exercise urinary findings in all the 95 subjects studied did not reveal any significant abnormality.

Serum sodium and potassium levels were estimated with the Eel's flame photometer by Hald's (1951) technique. Blood sugar was determined by the method of Folin and Wu (1920) and blood urea by modified urease aeration method of Van Slyke and Cullin (1914). The electrocardiograms were recorded with a direct writing electrocardiograph (Cardiomat-Seimens) and analysed for evidence of coronary insufficiency as described earlier by one of us (Malhotra and Pathania, 1954 a, b).

With a view to standardising observer's error, the physical indices were recorded and the estimations carried out by the same observers throughout.

RESULTS

None of the subjects complained of any cardiac pain, painful stiffness of the muscles, or faintness during or immediately after the tests.

Pulse and respiratory rates and blood pressure—The pulse, respiratory rates and the blood pressure measurements before and after the tests are shown in Table 2.

The rise in the mean systolic pressure after the tests was statistically significant. On the other hand, the tests were observed to produce a slight fall in the mean diastolic pressure ; the difference, however, was not significant statistically.

Individually, the systolic and diastolic pressures recorded a rise after exercise in 62 (65·3 per cent) and 29 (30·5 per cent) subjects respectively, the extent of rise being 2 to 36 and 2 to 30 mm. Hg respectively. A fall in the systolic and diastolic pressures was observed in 20 (21·1 per cent) and 30 (31·5 per cent) subjects respectively ; the range of fall varied from 2 to 20 and 4 to 30 mm. Hg respectively. The systolic pressure remained unchanged after the tests in 13 (13·7 per cent) and the diastolic in 36 (37·9 per cent) subjects.

Serum sodium and potassium, blood sugar and urea levels—Table 3 summarises the serum sodium, serum potassium, blood sugar, and blood urea levels, before and after the tests.

Individually, after the tests, the serum potassium levels were observed to fall in 67 subjects (70·5 per cent) through a range of 0·1 to 3 mg. per cent and rise in 5 (5·3 per cent) through a range of 0·1 to 0·2 mg. per cent. The serum sodium values declined through 1 to 11 mg. per cent in 28 (29·5 per cent), and rose by 1 to 9 mg. per cent in 36 (38·0 per cent) subjects. The blood urea levels registered an increase by 1 to 14 mg. per cent in 31 (32·6 per cent) and a fall by 1 to 10 mg. per cent in 45 (47·4 per cent) subjects respectively. The blood sugar fell by 2 to 62 mg. per cent in 80 (84·2 per cent) subjects. In 15 (15·8 per cent) subjects, the blood sugar level rose after

TABLE 2—SHOWING PULSE RATE, RESPIRATORY RATE, AND BLOOD PRESSURE BEFORE AND AFTER THE BATTLE PHYSICAL EFFICIENCY TESTS

	Pulse rate/minute		Respiratory rate/minute		Blood pressure (mm. of Hg)			
					Systolic		Diastolic	
	Before	After	Before	After	Before	After	Before	After
Range	44·93	67-136	16-20	24-48	84-148	100-160	54-90	40-100
Mean	64·01	100·40	20·04	33·28	115.11	126·00	72·45	71·37
S.D.	± 8·39	± 14·70	± 3·34	± 5·79	± 11·70	± 12·35	± 8·10	± 10·19

TABLE 3—SHOWING SERUM SODIUM, SERUM POTASSIUM, BLOOD SUGAR, AND BLOOD UREA LEVELS (MG. PER CENT) BEFORE AND AFTER THE BATTLE PHYSICAL EFFICIENCY TESTS

	Serum sodium		Serum potassium		Blood sugar		Blood urea	
	Before	After	Before	After	Before	After	Before	After
Range	304-340	306-335	15·6-20·5	15·6-20·5	71-133	50-91	18-36	18-35
Mean	320·6	320.6	18·8	17·8	84·1	77·4	24·6	24·4
Standard deviation ...	± 6·03	± 6·02	± 1·20	± 1·08	± 11·41	± 7·41	± 4·60	± 4·30
Standard error of mean	0·64	0·64	0·12	0·11	1·17	0·76	0·47	0·44
Value of T	0 Not significant		6·043 Significant		4·798 Significant		0·309 Not significant	

the tests through a range of 1 to 11 mg. per cent. In only 2 subjects did the blood sugar level fall below 60 mg. per cent and in none below 50 mg. per cent after the tests.

Urine—The pre-exercise urine samples were found to be normal in all respects. Minute traces of protein and an occasional leucocyte per high power field (6 × 45) of the centrifuged deposit were, however, found in 8 and 10 subjects respectively. These were discarded as insignificant.

The urinary alterations induced by the Battle Physical Efficiency tests are summarised in Table 4.

TABLE 4—SHOWING URINARY FINDINGS AFTER THE BATTLE PHYSICAL EFFICIENCY TESTS

	Proteinuria	Erythrocytes*	Leucocytes*	Granular casts	Spermatozoa
No. of subjects ...	48 (50·5%)	10 (10·5%)	25 (26·3%)	25 (26·3%)	5 (5·3%)

* More than 2 per high power field (6 × 45) in the centrifuged deposit.

The proteinuria was in traces to one plus quantity in 44 subjects and was one plus or more in 4 subjects. None of these subjects had shown any protein in the pre-exercise urine samples. Of the 10 subjects showing haematuria one showed innumerable erythrocytes per high power field (6 × 45) in the centrifuged deposit. The number of leucocytes, granular casts, and spermatozoa varied from 2 to 8, occasional to 10 and occasional to 40 per high power field (6 × 45) in the centrifuged deposit.

Electrocardiogram—Analysis of the precordial electrocardiograms recorded immediately after the tests did not reveal unequivocal evidence of coronary insufficiency in any subject according to the criteria published earlier (Malhotra and Pathania, 1954 a, b).

DISCUSSION

The most striking effect of the Battle Physical Efficiency Tests was the marked alteration in the urinary sediment induced by them in some subjects. Indeed, we were surprised by the close similarity of these changes to that of glomerulonephritis.

While the occurrence of transient albuminuria after exercise is well known, the urinary sediment abnormalities are not so widely recognised. Abrahams (1951), in his discussion on the effects of exercise on the kidney, made no reference to these abnormalities. Although Amelar and Solomon (1954) had reported the occurrence of haematuria and pyuria after boxing, attention was focussed on the subject by Gardner (*loc. cit.*) who coined the term 'athletic pseudonephritis' for the cylindriuria, haematuria, and pyuria observed in football players after the game.

A comparative incidence of the urinary abnormalities reported after various types of exertion is presented in Table 5. It will be seen that the incidence of urinary abnormalities in the present study is appreciably less than in most of the reported series. This is significant in view of the strenuousness of the Battle Physical Efficiency Tests and the observation that the urinary sediment alterations are related to the degree of exertion (Arnett and Gardner, *loc. cit.*). The frequency of urinary anomalies has also been correlated with the type of exertion. Sports which involve trauma to the kidney like boxing, squat jumps, and lacrosse are considered conducive to a higher incidence of urinary abnormalities than the purely non-traumatic sports like swimming (Alyea and Parish, *loc. cit.*). Some of the Battle Physical Efficiency Tests like jumping across a ditch, climbing the rope, and carrying a man on the back are not entirely nontraumatic, and involve a certain degree of trauma to the kidney, however indirect, because of the inevitable jostling of the kidneys in these exercises. A possible explana-

TABLE 5—SHOWING COMPARATIVE INCIDENCE OF URINARY ABNORMALITIES AFTER EXERTION OF VARIOUS TYPES

Authors	Type of exertion	No. of subjects	Percentage showing urinary abnormalities					
			Proteinuria	Haemoglobinuria/myoglobinuria	Erythrocytes	Leucocytes	Casts	Sperms
Amelar and Solomon (1954)	Boxing	103	68·0	—	73·0	—	26·0	—
Alyea and Parish (1958) ...	1500 meters race	?	100·0	—	84·0	—	84·0	—
	Long distance swimming	9	75·0	—	77·8	—	55·6	—
	Lacrosse	16	81·3	—	75·0	—	75·0	—
Howenstein (1960) ...	Squat jump	19	—	—	36·8	31·6	52·6	—
Arnett and Gardner (1961)	Deep knee bends	8	25·0	37·8	—	12·5	25·0	—
Present study ...	B.P.E.T.	95	50·5	—	10·5	26·3	26·3	5·3

tion for the lower incidence of urinary abnormalities in the present study may, therefore, lie in the effect of training in our subjects, the incidence of these abnormalities being reportedly greater if the exertion is carried out after periods of muscular inactivity (Arnett and Gardner, *loc. cit.*).

The presence of a large number of sperms in the urinary sediment after the tests, a finding not hitherto reported, may be due to the expulsive effect of the endogenous epinephrine released during exercise on the seminal vesicles.

The fall in blood sugar level in all but 15 subjects as also the statistically significant drop in the mean blood sugar after the tests is at variance with the results obtained by Bruusgaard (1929) who observed a rise in blood sugar levels after violent exercise lasting thirty to forty minutes. Edwards *et al.* (1931) reported elevation in blood sugar levels up to 244 mg. per cent after violent exertion. Burger and Martens (1924), on the other hand, reported a decrease, no change, and an increase in blood sugar after one hour of gymnastics or boxing in fasting men. However, in none of our subjects did the drop in blood sugar proceed below 50 mg. per cent nor was it observed to cause any muscular incoordination or collapse as observed by some other observers in marathon or olympic runners showing hypoglycaemia (Karpovich, *loc. cit.*).

The statistically significant decline in the mean serum potassium induced by the Battle Physical Efficiency Tests also conflicts with the rise observed after muscular activity in some series (Fenn and Gerschman, 1939; Feber *et al.*, 1951). This may be due to the effect of carbohydrate-rich breakfast taken before the tests; plasma potassium level is known to decrease after glucose ingestion (Feber *et al.*, 1951). However, the stimulation of adrenal cortex and the release of epinephrine during exertion may cause a fall in serum potassium (Pugh, 1959).

Unequivocal evidence of coronary insufficiency was not observed in any of the electrocardiograms recorded after the tests. This is remarkable in view of the fact that the autopsy incidence of significant coronary atherosclerosis in Northern India in the age groups included in the present study (18 to 41 years) has been found to range between 47·4 to 70·8 per cent (Wig *et al.*, *loc. cit.*). This would seem to be a tribute to the efficacy of the collateral circulation in the coronary tree, particularly so in view of the strenuousness of these tests and the cold weather in which they were gone through.

SUMMARY

A clinical, biochemical, and electrocardiographic evaluation of the Battle Physical Efficiency Tests in use in the Indian Armed Forces was carried out in 95 army personnel.

Protein in traces to one plus quantity, erythrocytes and leucocytes (more than 2 per high power field in the centrifuged deposit), and granular casts were observed in the urine specimens voided immediately after the tests in 50·5, 10·5, 26·3 and 26·3 per cent of subjects respectively. Spermatozoa were detected in 5·3 per cent of subjects.

No statistically significant difference was observed in the mean blood urea and mean serum sodium levels before and after the tests. A statistically significant fall in the mean serum potassium and a marked statistically significant fall in the mean blood sugar levels was, however, noticed after the tests.

Unequivocal evidence of coronary insufficiency was not detected in any of the electrocardiograms recorded immediately after the tests.

The literature on the subject is reviewed and possible reasons discussed for the observations not in accord with similar studies.

It is concluded that the Battle Physical Efficiency Tests in the combination studied do not produce any deleterious effects.

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STUDY OF THE BRADYKININ ANTAGONIST DRUGS IN CERTAIN CLINICAL CONDITIONS

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That plasma kinin may be the main mediator in inflammatory responses was shown by Feldberg (1956). It had also been shown that kallidin plays a part in blister formation or swelling of the skin in burns and angioneurotic oedema. Burch and Depasquale (1963) showed that the tissue pain sensation is due to liberation of bradykinin. Further, it was shown by Wolff (1937) that bradykinin-like enzyme may be associated with headache, migraine, chronic schizophrenia and renal diseases. Similar observations were reported by other workers in association with many other clinical conditions.

Some drugs like phenazone, amidopyrine and salicylates are known to antagonise bradykinin formation and its effect. The present study has been undertaken to study the effect of certain drugs, which antagonise or destroy bradykinin, in certain clinical conditions where bradykinin is supposed to be liberated due to trauma, histamine release, activation of proteolytic enzyme and acidic reaction of blood.

MATERIAL, METHOD AND OBSERVATIONS

In the present study, only those patients were included in whom clinical diagnosis was confirmed by pathological and radiological investigations. The results of these investigations are not given here. The drugs used, with their doses, were, (1) inj. sodium bicarbonate (1·5 per cent), 500 ml. given I.V., in acute cases ; (2) tab. sodium bicarbonate, 15-20 gr. t.d.s., in chronic cases ; (3) acetylsalicylate, 10-20 gr. t.d.s. ; (4) amidopyrine, 1 gr. b.d. ; and (5) inj. emetine hydrochloride, 1 gr. locally.

Out of 40 cases of rheumatism, 10 were acute and treated with sodium bicarbonate injection and 30 were chronic which were treated with sodium bicarbonate tablet. In scorpion sting cases 1 gr. emetine hydrochloride was injected subcutaneously at the local site and the effect was compared with those treated with ¼ gr. morphine sulphate subcutaneously, 50 mg. pethidine hydrochloride i.m. and 1 per cent 10 ml. novocaine injected locally.

Particular attention was paid in avoiding use of amidopyrine in patients having lesion in the heart and kidney, low W.B.C. count and hypersensitivity to this drug. Use of sodium bicarbonate injection was avoided in patients who showed hypertension, alkalosis and suppression of urine. Emetine was not given to patients showing evidence of cardiac lesion.

The results of the present study are shown in Table 1.

TABLE 1—SHOWING THE RESULT OF TREATMENT IN DIFFERENT CLINICAL CONDITIONS

Disease	No. of cases studied	Treatment					Results and remarks
		Sodium bicarbonate 1·5% 500 ml. I.V.	Sodium bicarbonate tab. 15-20 gr. t.d.s.	Amidopyrine 1 gr. b.d.	Acetylsalicylate 10-20 gr. t.d.s.	Inj. emetine 1 gr.	
Postoperative ...	50	+	−	−	+	−	Fairly good results if given a day after operation. Relieves pain and discomfort. 5 HT may play a part in it
Myocardial infarction (without hypertension)	10	+	−	−	+	−	Fairly good result. Sodium bicarbonate destroys bradykinin (Morphine ¼ gr. subcutaneously is usual treatment)
Bronchial asthma ...	40	+	+	+	−	−	Fair response. Varying results with sodium bicarbonate therapy
Rheumatism ...	40	+	+	+	+	−	Acute cases easily tolerated higher doses of acetylsalicylate with good results. With sodium bicarbonate varying results. Needs more trial
Angioneurotic oedema ..	10	+	+	−	−	−	Transient relief only with I.V. sodium bicarbonate. Fairly good results with sodium bicarbonate tablets
Anaphylactic shock ...	10	+	−	−	−	−	Fairly good response
Migraine ...	15	+	+	−	−	−	I.V. sodium bicarbonate tided over crisis but in chronic cases sodium bicarbonate tablets did not show any appreciable relief
Scorpion sting ...	25	−	−	−	−	+	Excellent results with emetine. Fairly good result was obtained with novacaine which acts as antagonist. Morphine acts by raising pain threshold. Needs more trial with emetine
Acute pancreatitis .	10	+	−	−	+	−	Little response with sodium bicarbonate and moderate relief with acetylsalicylate therapy
Toxaemia of pregnancy	10	−	−	+	+	−	Moderate results with both sodium bicarbonate and acetylsalicylate. Needs more trial

+ = administered − = not administered.

DISCUSSION

Though a trial of acetylsalicylate and amidopyrine was given by Collier (1962), Herxheimer (1961) and Herxheimer and Stressman (1961) in relation to bronchial asthma and rheumatism, yet there are several other clinical conditions where these have not been tried till date. In the present study the use of 1·5 per cent sodium bicarbonate is a new therapeutic approach in the management of certain clinical conditions (Table 1).

That bradykinin plays an important role in certain clinical conditions was shown by several workers. Collier (*loc. cit.*) showed importance of bradykinin in angioneurotic oedema, Beraldo (1960) in shock, Forell (1961) in acute pancreatitis, Wolff (*loc. cit.*) in migraine and Bruch and Depasquale (*loc. cit.*) in cases of inflammation and after major surgical operations. Herxheimer and Stressman (loc. *cit.*) found out that salicylic acid and amidopyrine suppress bronchial constriction and suggested that plasma kinins may play a role in bronchial asthma. Antopol and Chryssanthou (1963) showed that in experimental animals amidopyrine acts as an antagonist to bradykinin in Schwartzmann reaction. They also showed that liberated bradykinin potentiates the Schwartzmann's phenomenon, bacterial endotoxins can activate proteolytic enzymes and liberate bradykinin and also a series of changes occur which produce a complicated picture. Boyd (1962) suggested that Schwartzmann phenomenon is possible in toxaemia of pregnancy.

In the present study it has been found that emetine degrades bradykinin at the local site as shown in scorpion sting cases.

Bradykinin fomation is facilitated by slightly acidic pH and perhaps a more stable acid bradykinin is formed in most of these clinical conditions. Sodium bicarbonate acts by antagonising this action.

Acetylsalicylic acid and amidopyrine exert their action by antagonising the action of bradykinin on visceral receptors. This fact has been confirmed by Herxheimer and Stressman (*loc. cit.*) who demonstrated that salicylic acid and amidopyrine suppress the bronchial constriction and suggested mediation of plasma kinins in bronchial asthma.

CONCLUSIONS

Amidopyrine and acetylsalicyclic acid antagonise the action of bradykinin in the majority of clinical conditions.

That I. V. use of 500 ml. of 1·5 per cent sodium bicarbonate is fairly effective in destroying bradykinin in acute conditions and in relieving the pain and discomfort.

The use of sodium bicarbonate (15 to 20 gr. tablet) is fairly effective in chronic conditions.

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PRACTITIONERS' SERIES

PERIODIC HEALTH EXAMINATION

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Today's practising physician, whether a specialist or a general practitioner, must have noticed the changing demands on his skills and services in the recent years. In the past, people came to the physician only as sick 'patients'. Now, it is not at all rare to get an apparently well person, presenting voluntarily, wanting to know whether or not he is well and is likely to stay well in future. This change is already well marked in the paediatric practice, where a considerable time of the paediatrician is being spent in the care of well children, especially from the sophisticated class—in reassuring the parents regarding the normal progress of their child, advising the mother about the diet and undertaking of the immunisation programme.

It seems that in the coming years, the present day emphasis on the care of the sick people would shift to the care of those who are ostensibly well. The clinical practice of tomorrow, after the conquest of communicable diseases—would involve more and more of preventive medicine, broadly interpreted to include the early detection and treatment of various degenerative and neoplastic diseases. This, then, is the task for which we have to adequately prepare ourselves, in time.

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Not many would question the value of such periodic health reviews. Those concerned with the health of various 'occupational groups' testify to the usefulness of such examination by asserting that such check-ups quite frequently reveal some significant, unsuspected or unrecognised disease in, at least, one fourth to one third of those examined. Against such examinations, it can be said that they may precipitate previously non-existing anxieties. Such fears are probably over-exaggerated and, in any case, the overall gains overweigh the disadvantages. The timely discovery of a previously undiagnosed and unsuspected disease may avert a fatal outcome and in the case of a previously known but neglected condition, the person may obtain the indicated treatment as the result of such examination.

HEALTH MAINTENANCE EXAMINATION

The health maintenance examination consists of:

Interview—There is no justification in the belief that history-taking in such circumstances is of lesser value. On the other hand, the discovery of many important disorders depends quite often on the historical clues obtained from such ostensibly well individuals. However, with a view to save time, a questionnaire type of history can be completed by the individual himself, with subsequent elaboration of various positive and significant negative points by the physician. For this purpose, a type of questionnaire on the lines of Cornell Medical Index (Bradman *et al.*, 1949, 1951) can be conveniently employed. This procedure, in fact, may lead to a clue in the diagnosis, when even a most competent physician might have overlooked it, while obtaining the history.

Physical examination—Just like history-taking a thorough and complete physical examination is all the more important in the present context. Many of the examinations like palpation for the peripheral pulses, funduscopy and palpation of thyroid, which are generally done 'on indication' should be routinely carried out. Similarly, a proctoscopic examination in an adult male is a 'must'; we cannot afford to miss an asymptomatic adenoma subsequently undergoing malignancy.

Laboratory and radiological examination—Opinions vary as to what laboratory and x-ray examinations are to be ordered in investigating such individuals. In general, it can be stated that more tests have to be ordered initially than on subsequent visits and in older individuals than in younger ones. Further, it would also depend upon the financial resources of the individual concerned and upon the facilities available. It is a good plan to have a battery of certain basic tests to be employed in all cases and to add some more tests as are indicated in a particular case. Thus, a routine urine analysis, a measurement of packed cell volume, a chest skiagram and a complete stool examination, including test for occult blood would suffice in an ordinary case. In an older individual above the age of thirty-five or forty years, a 12-lead electrocardiogram may also be done. There are physicians who include the measurements like E.S.R., Hb., blood glucose, serological tests for syphilis and the study of blood and cervical smears routinely, but they are in the minority. In this connection, it is understood that a physician ordering such tests is fully conversant with the implications and interpretation of the results of these tests.

SUMMARY

Attention is drawn of the practising physicians towards a trend in the changing scene of their field of activity. The advisability and a practical approach to the problem of a periodic health maintenance examination is discussed.

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SPECIAL ARTICLES

VALUE OF TOMOGRAPHY IN GAS-MYELOGRAPHY AND PNEUMO-ENCEPHALOGRAPHY*

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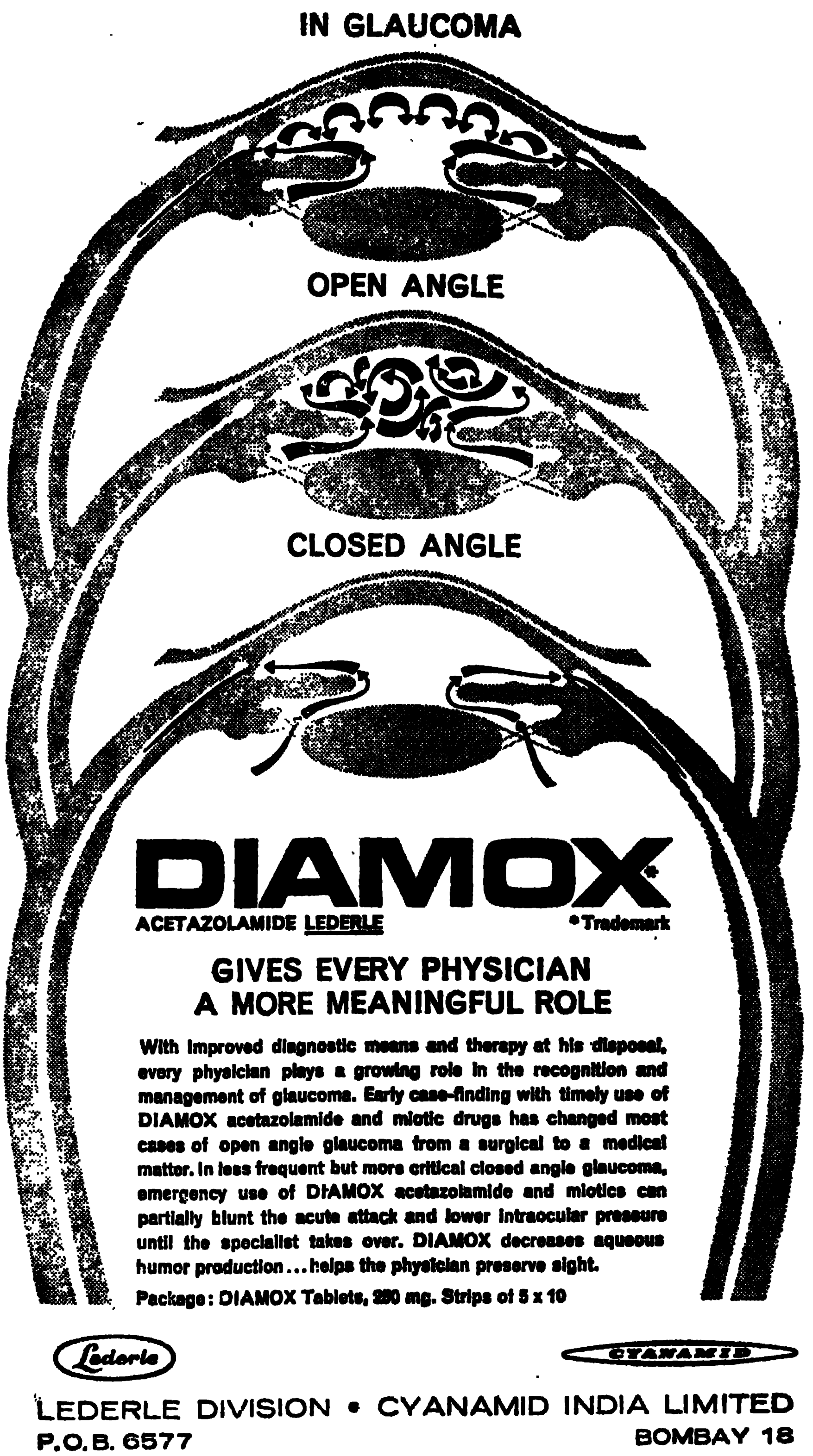
* Presented at postgraduate medical course, Madras Medical College on 30th January, 1965



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GAS-MYELOGRAPHY

Positive contrast myelography, in spite of good results in expert hands, has several disadvantages: necessity of screen-radioscopy, of examination in prone and supine position; difficulty in reading documents obtained by another investigator; impossibility in case of complete blockage of the spinal canal to obtain on the same picture the superior and the inferior limits of the pathological process, together with the inconvenience of some amount of foreign fluid left in the subarachnoidal space.

Gas-myelography gives remarkable pictures of the spinal cord and of the spinal canal. Tumours, even of small size, can be visualised as well as atrophical or malformative conditions. Abnormalities of vertebrae can be recognised together with their implications on the spinal cord condition. But this method could not even exist without tomography. On a technical point of view, linear sweep of the incidence ray is not sufficient for elimination on the bone structures lying outside the chosen section; hypocycloid sweep is needed (Polytome, Massiot, Paris). The investigation can be carried out under local anaesthesia, but general anaesthesia is usually preferred. The patient is lying on his side, being tilted 10° to 15° head down. Oxygen is introduced in the subarachnoidal space either by lumbar or by suboccipital route or both, when exact delimitation of a complete blockage is desired. Lateral serial tomographical views are obtained and occasionally frontal pictures can be taken as well, after the needle has been withdrawn and the patient put in supine position.

Usually, the investigation is well tolerated but in a few instances it can be followed by low cerebrospinal fluid pressure syndrome. The superiority of gas-myelography appears obvious for spinal cord investigation, but methods using positive contrast medium (Methodial, "U" Contrast) may be considered more adequate for the examination of cauda equina in the lumbar spinal canal, but they are not without danger.

Gas-myelography may be advisable and valuable even in this respect, provided careful technique is used.

CASE REPORT

Case 1—Boy, Yves V., 6 years old. Gas-myelography was done on 11-12-63. Oxygen was introduced by lumbar and suboccipital routes. Fig. 1A (*vide* Plate) shows the normal lumbar spinal canal and the normal lumbosacral cord; the low thoracic cord, on the contrary, being grossly enlarged, occupying the whole canal. Fig. 1B (*vide* Plate) shows that almost the whole thoracic cord is enlarged, the upper thoracic cord appearing of normal size. The bony canal is enlarged as well especially at the mid-thoracic level.

Figs. 1A and B (*vide* Plate) give an example of intramedullary space-occupying lesion. This six-year-old boy developed a rapidly progressive paraplegia and gas-myelography demonstrated evidence of gross thickening of thoracic cord. At operation the cord was found to be occupied in its centre by a large mass of glial tissue, which histologically appeared to be of non-tumoral but malformative origin.

PNEUMO-ENCEPHALOGRAPHY

Autotomography as early as 1950 has been introduced by Ziedses des Plantes for study of the fourth and third ventricles. Thanks to new apparatuses (Princeps—CGR, Paris, for example) linear tomography now can be added to the classical methods very easily without changing the position of the patient. Midline sagittal tomography gives pictures which have almost the precision of anatomical sections: cerebellar vermis, medulla oblongata and brain stem, third and fourth ventricles, appear with all their details; basal cisterns are well delineated and the base of the skull and its deformities can be studied without superposition.. It is even possible to obtain cross-section of medulla and brain stem by tomography in the frontal plane. If tomography gives valuable information in case of space-occupying lesions, especially of the midline, it is probably the only way of studying malformations and even more atrophical processes. Cerebellar atrophies, for instance, have been described precisely by Thiebaut and associates in Strasbourg using this method. Filling of the ventricular system and subarachnoidal cisterns is essentially the same as for classical fractioned encephalography. In order to obtain good visualisation of the vermis the sitting patient's head must be maintained with the oculo-auricular line at an angle of 30° below the horizontal. Frontal and sagittal pictures are obtained without changing that position. Basal cisterns should have been previously filled, oxygen being injected with the head in erect position. Lateral pictures of the third ventricle are taken, patient being in supine position with hanging head. The rest of the examination is performed in the usual way. It may be done under local or general anaesthesia.

CASE REPORTS

Case 2—Mr. John H., 45 years old. Pneumo-encephalography was done on 1-7-64, patient in sitting position. Mid-sagittal tomography. Normal aspect of medulla and brain stem of fourth and posterior portion of third ventricle of cerebellar vemis, visualised.

The normal appearance of posterior fossa structures is shown in Fig. 2 (*vide* Plate). Particularly well delieated appear the fourth ventricle and aqueduct and the cerebellar vermis.

Case 3—Miss Mireille C., 15 years old. Pneumoencephalography was done on 27-1-64, patient in supine position with hanging head. Mid-sagittal tomography. Normal aspect of third ventricle and basal cisterns; oral portion of aqueduct, lateral ventricles and foramen Monro are visualised too.

Case 4—Mr. Vittorio S., 32 years old. Pneumoencephalography was done on 9-6-64. Patient in supine position with hanging head. Mid-sagittal tomography. The third ventricle is occupied in its oral part by a cystic tumour. Only a small amount of air is occupying the ventricle, delineating the posterior and superior limit of the tumour; only one foramen Monro is patent, the left one being blocked by the tumour.

Figs. 3 and 4 (*vide* Plate), should be compared; the first one represents a normal third ventricle, whereas the second one shows the aspect of a third ventricle partially occupied by a cystic tumour, implanted on the infundibulum.

CONCLUSION

It can be asserted that tomography is the essential condition for valuable gas-myelography which is the method of choice for study of the spinal cord pathology and that it allows further developments of pneumo-encephalography. The only fault of this method lies in the difficulty of getting good reprints.

CEREBRAL ARACHNOIDITIS

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Obscure cases characterised by signs of increased intracranial pressure but without obvious aetiology or definite changes in spinal fluid were designated in the earlier literature as meningitis serosa, serous effusions of inflammatory origin, acute hydrocephalus and pseudotumour cerebri. During the last 15 years the term arachnoiditis is being widely used for some of these cases.

The pseudotumour cerebri (syn.: meningitis serosa, otitic hydrocephalus) has been separated from arachnoiditis. The pseudotumour cerebri is a distinct clinical entity. Its assocation with pregnancy, menarche and otitis media is well known (Greer, 1962, 1963, 1964). Though presenting with acute episodes of raised intracranial tension these cases have a normal C. S. fluid, excepting its manometric pressure and smaller or normal sized ventricles on ventriculography (Paterson *et al.*, 1961). Except the cases of lateral sinus thrombosis these cases do not pose serious problems regarding vision and run a self-limiting benign course.

On the other hand, cerebral arachnoiditis has a different course, prognosis and aetiology. It was first described in the year 1897 by Quincke (cited by Walsh, 1957) as serous meningitis in which signs of increased intracranial pressure were conspicuous. It is characterised by low grade inflammation of pia-arachnoid with lymphocytes and plasma cells.

The aetiology of cerebral arachnoiditis is not clearly known. Those cases in whom no valid cause can be discovered are classified as primary arachnoiditis (Retif, 1963, cited by Mackay *et al.*, 1963-64). There are also secondary types of arachnoiditis in which the aetiologies appear more probable. The most important is secondary to purulent meningitis, brucellosis and trauma. Tindal and Gladstone (1957) reported a case of obstructive hydrocephalus due to posterior fossa arachnoiditis as sequela to benign aseptic meningitis. In India, tuberculous meningitis being so common has perhaps an important place in its aetiology. Kubo (1961) reported 60 cases from Japan suffering from tuberculous meningitis. Of these, 15 cases survived for 4 years and in all of them increased intracranial tension was present. Paddison and Alpers (1954) described a case of arachnoiditis following spinal anaesthesia. They suspected that a spreading agent (detergent used for cleaning the apparatus) was responsible. Experimental study of Howland *et al.* (1963) has shown that 'pantopaque' mixed with blood results in maximum degree of arachnoiditis as compared to either of the agents introduced alone in intrathecal space.

Cerebral arachnoiditis is divisible into two broad groups: general and localised forms. The localised type involves two principal regions, i.e., the posterior fossa and region of chiasma.

General cerebral arachnoiditis presents with signs of raised intracranial tension without any localising signs. The C.S.F. is often normal in chemistry. Posterior fossa arachnoiditis assumes significance, amongst localised forms. Horrax (1924), cited by Howell (1936), described a series of 33 cases which clinically resembled tumours of the cerebellum and at operation were found not to have a tumour but posterior fossa arachnoiditis.

Raimondo and Vigoreth (1963) reported 20 cases of posterior fossa arachnoiditis presenting with signs and symptoms of raised intracranial tension without any localising signs. In chiasmatic arachnoiditis, in a few cases there is preceding infection in the nose or accessory sinuses. The symptoms are fairly characteristic. A sudden loss of visual acuity occurs which increases rapidly and may progress towards complete blindness. The optic disc at first normal becomes pale at a later stage. The visual defect consists of central scotoma and marked peripheral constriction of fields. The x-ray examination shows normal sella.

MATERIAL

The cases admitted to G.M. & Associated Hospitals were studied. In 2 years (1962-63) twelve cases were observed to have arachnoiditis leading to increased intracranial tension. These cases were examined and investigated in detail. The ventriculograms were obtained in each case by introducing air or myodil in the ventricles through burr holes in the skull. Myodil ventriculogram was obtained in one case.

OBSERVATION

The above 12 cases could be classified into the following groups:

Group I—It included cases which occurred following known episodes of tuberculous meningitis with persistence of C.S.F. changes—4 cases.

Group II—Here clinical presentation was suggestive of non-localising brain tumour with normal cerebrospinal fluid—4 cases.

Group III—These were miscellaneous cases with or without C S.F. changes—4 cases.

The clinical diagnoses made in cases were (i) Blindness due to optic atrophy—one case, (ii) pituitary tumour—one case, (iii) Fröhlich's syndrome—one case, and (iv) cerebellar abscess—one case. Table 1 gives detailed clinical records, including relevant investigation reports of the 12 cases studied.

Group I—All the four cases in this group (Table 1) presented initially with meningeal irritation and C.S.F. changes suggestive of tuberculous meningitis. The history of meningeal inflammation in these cases ranged from 1 month to 1½ years. In all the 4 cases ventriculography showed dilatation of the ventricles. In 3 cases the obstruction was intraventricular and in one case communicating hydrocephalus was present. All the 4 cases had progressive diminution of vision.

Group II—Four cases belonged to this group. The clinical presentation was headache, vomiting and diminution of vision. None of these cases gave any past history suggestive of tuberculous meningitis, ear discharge or trauma. On clinical examination none of them had any localising sign. The fundus examination in each case showed bilateral papilloedema and in one case it had progressed to optic atrophy. The chemical examination of cerebrospinal fluid in contrast to group I cases, was absolutely normal including the cell count. Serology was negative in each case. A probable diagnosis of non-localising brain tumour was kept on clinical grounds but ventriculography revealed presence of communicating hydrocephalus in 3 cases and obstructive hydrocephalus in one without any shift or distortion of ventricles. These cases were operated and a thickened arachnoid was seen on exploratory craniotomy in the region of posterior cranial fossa. In communicating hydrocephalus ventriculoperitoneal shunt was done. All the three patients expired. Two patients expired in the immediate postoperative phase: one case (No. 8) due to development of sepsis and the other (No. 6) due to hyperpyrexia. The remaining patient (No. 7) improved in symptoms but she developed left-sided hemiparesis as a postoperative complication. She died after a month of operation at her home. In the remaining patient of obstructive hydrocephalus (No. 5) removal of thickened arachnoid in the posterior fossa instituted free flow of C.S.F. Postoperatively the recovery was uneventful and the patient was relieved of his symptoms at the time of discharge.

Group III—This included 4 cases and in contrast to the previous group each case had its clinical variant.

CASE REPORTS

Case 9 (Presented with complete blindness with optic atrophy)—H. C., aged 30 years, was admitted to this group of hospitals with complaints of progressive blurring of vision for 4 years and complete blindness of 2 years' duration. He had no other complaint except occasional intermittent headache. On clinical examination he had bilateral optic atrophy of primary type and no other localising sign.

Investigations including blood counts, E.S.R., serology and C.S.F. were normal. X-ray skull was normal. No change in sella turcica could be seen. Ventriculography revealed dilated lateral and third ventricles but without any shift. Suboccipital craniotomy showed thickened arachnoid in the posterior cranial fossa. Postoperatively the patient had rapid recovery but no improvement was achieved in the vision.

Case 10 (Presentation as pituitary tumour)—P. L., aged 48 years, was admitted to this group of hospitals with complaints of gradual loss of vision and attacks of giddiness of one year's duration. He was admitted to ophthalmic ward about 6 months prior to this admission. At that time he had optic atrophy and dilatation of pituitary fossa without erosion or destruction of posterior clinoid processes. Fig. 1 (*vide* Plate) shows

TABLE 1—SHOWING DETAILED CASE RECORDS

Case No., name and date of admission	Age (years) and sex	Duration (month)	Headache	Vomiting	Fundus	Visual changes	Other positive physical signs	X-ray skull	C. S. F. Protein (mg.%)	C. S. F. Chloride (mg.%)	C. S. F. Cell/c.mm.	C. S. F. Sugar (mg.%)	Ventriculography	Diagnosis	Operation	Remarks
GROUP I :																
(1) H. V., 25-10-62	5, M	1	+	+	Optic atrophy	Blind	—	Opening up of sutures, posterior clinoid erosion	100	570	240 (L.)	54	Dilated lateral, III and IV ventricles	Post-tuberculous meningitic hydrocephalus	Obstructive	Relieved
(2) A. K., 2-1-63	3½, M	12	+	+	,,	,,	—	Widening of sutures, sella turcica normal	50	560	20	60	Dilated lateral and III ventricles	,,	,,	,,
(3) V. V., 15-8-62	25, F	8	+	+	Bilateral papilloedema	Peripheral constriction of fields	—	Normal	150	560	70	40	Mild dilatation of lateral, III and IV ventricles	Tuberculous meningitis with communicating hydrocephalus	,,	,,
(4) S., 4-6-62	35, M	15	+	+	,,	,,	—	Dilatation of sella turcica, erosion of posterior clinoid processes	200	550	2000	40	Gross dilatation of lateral and III ventricles	Obstructive hydrocephalus	,,	,,
GROUP II :																
(5) M. N., 27-8-62	22, F	18	+	+	Bilateral papilloedema	Blind	—	Posterior clinoid erosion, sellar dilatation, widening of suture and silver-beaten appearance	20	750	5	72	Dilatation of lateral and III ventricles, IV ventricle not visualised	Obstructive hydrocephalus	Ventriculocisternal shunt	Relieved

(6) I. D., 25-4-63	32, F	18	+	+	”	Peripheral constriction of fields	–	Erosion of posterior clinoid process, separation of sutures	10	650	5	80	Dilatation of lateral, III and IV ventricles	Communicating hydrocephalus	Ventriculoperitoneal shunt	Expired
(7) R. D., 20-2-63	16, F	6	+	+	”	Blind	–	Normal	20	700	5	75	—	”	”	”
(8) R. S., 4-5-62	20, M	72	+	+	Optic atrophy	”	–	Deepening of sella, erosion of posterior clinoid process, separation of sutures	30	650	5	70	Dilatation of lateral and III ventricles, IV ventricle of normal size	”	”	”
GROUP III :																
(9) H. C., 1-11-62	30, M	48	±	–	Optic atrophy	Blind	–	Normal	30	700	5	75	Dilated lateral and III ventricles	? Optico-chiasmatic arachnoiditis with hydrocephalus	Suboccipital exploration	Expired
(10) P. L., 3-12-61	48, M	12	+	+	”	”	–	Sella turcica dilated without erosion of posterior clinoid processes	20	650	5	70	Communicating hydrocephalus	Clinical and radiological simulation of pituitary tumour	External ventricular drainage	”
(11) C. D., 3-1-63	20, M	24	+	–	”	”	Hypogonadism and obesity	Dilated sella turcica, erosion of posterior clinoid process	10	750	5	68	Obstructive hydrocephalus	Fröhlich's syndrome	Ventriculocisternal shunt	Otherwise
(12) K. R., 4-6-63	35, F	2	+	+	Normal	Normal	Fever, 6th nerve palsy, right-sided ataxia and (extensor) plantar	Normal	400	500	1600 (P. and L.)	30	”	Clinical and ventriculographic evidence in favour of cerebellar abscess	Suboccipital exploration	Expired

N.B.—Serology was negative in all the cases communicating hydrocephalus with dilated sella turcica without erosion of clinoid processes. Serology was negative and blood counts were normal. He was given 15 exposures of deep x-ray therapy without any relief. On his 2nd admission ventriculography was done which showed communicating hydrocephalus. On suboccipital exploration of cranium, thickened arachnoid was seen in the region of posterior fossa. Ventricular drainage was instituted as shunt operation was deferred. The patient developed secondary pyogenic meningitis and expired.

Case 11 (Fröhlich's syndrome)—The authors (Natu *et al.*, 1965) have reported a case of Fröhlich's syndrome due to internal hydrocephalus secondary to arachnoiditis. The cause of arachnoiditis in this case was probably intracranial haemorrhage due to head injury.

This case sustained head injury by a moving horse drawn vehicle (*ekka*) and became unconscious. Following a month after the injury, he noticed gradually progressive diminution of vision with headache. He became obese and gained fat particularly over the breast and hip. There was no associated symptoms of polyuria or polydipsia. The external genitalia showed hypogonadism. The serology was negative. The x-ray showed marked ballooning of sella turcica and widening of cranial sutures. The ventriculography showed obstructive hydrocephalus, without any evidence of tumour. The patient was operated and ventriculocisternostomy was done. He had no relief of the headache. The chronic internal hydrocephalus was responsible for Fröhlich's syndrome in this case.

Case 12 (Presentation as cerebellar abscess)—K. R., 35 years, female, was admitted to this group of hospitals with complaints of fever, headache and vomiting and recurrent ataxia of 2 months' duration.

On examination she was afebrile, the pulse, respiration and B. P. were normal. She was drowsy; fundus was normal but right 6th cranial nerve was paralysed and plantar response was bilaterally extensor. She had marked ataxia and incoordination. Blood counts were normal. C.S.F. tension was raised, its protein content being 400 mg. per cent, chlorides 500 per cent and cells 1600/c. mm. On the basis of C.S.F. findings and clinical picture, a diagnosis of cerebellar abscess was made. Ventriculography revealed moderate degree of internal hydrocephalus. Both the lateral and third ventricles were dilated but the fourth ventricle could not be visualised. This was in favour of the diagnosis of cerebellar abscess.

Exploratory craniotomy was done in the suboccipital region. Both cerebellar lobes were exposed, and explored with needle. No pus was obtained. The burr holes were enlarged. The arachnoid over the cisterna magna was thickened and opaque. The thickened arachnoid was opened, the obstruction to the flow of C.S.F. was thus removed and C.S.F. gushed out. The clinical picture, increased C.S.F. tension and its biochemical changes in this case were thus due to arachnoiditis rather than because of cerebellar abscess. It is difficult to explain the presence of marked pleocytosis and increased protein content in the case in the absence of cerebellar abscess. The patient expired on the 7th day of operation without any improvement.

DISCUSSION

The aetiology of arachnoiditis is not clear but when a causal factor is present it falls into one of the two groups: an antecedent trauma with or without fracture of the skull or an antecedent infection. The infections are of two kinds; leptomeningoencephalitis or an infection of an area adjacent to the brain (the middle ear, mastoid or various sinuses). In four cases of cisternal arrachnoiditis reported by Heuer and Vail (1931) severe cranial trauma was the aetiologic factor in one case. Howell (*loc. cit.*) also associated the cranial trauma as the causative agent. Out of the present 12 cases, in one case (No. 11, the case of Fröhlich's syndrome), head injury could be attributed as the cause. In the remaining 11 cases no history of trauma or ear discharge or sinusitis was available and serology was negative. In 4 of the cases of group I, the history, physical findings and C.S.F. changes were in favour of tuberculous meningitis. In one case of cerebellar presentation the C.S.F. changes were in favour of infective origin. But in the rest of the 6 cases (4 cases of group II and 2 of group III) no definite cause could be ascertained. Claude (1933), cited by Howell (*loc. cit.*), also discussed the possibility of arachnoiditis occurring as the result of infection by the tubercle bacilli in an attenuated form and was inclined to accept this as an aetiological factor. Kubo (*loc. cit.*) from Japan reported that all his cases of tuberculous meningitis who survived for 4 years developed signs of increased intracranial tension. Although other types of meningeal infection like brucellosis (Howell, *loc. cit.*; Retif, *loc. cit.*), aseptic meningitis (Tindal and Gladstone, *loc. cit.*) are known to produce arachnoiditis, these seem unlikely. In India, tuberculous infection is so common, it seems that Claude's (*loc. cit.*) hypothesis may hold good in certain of our group II cases. In the 4 cases in whom definite history of tuberculosis was available we find that these cases progressed from active inflammation to the sequelae of arachnoiditis and hydrocephalus in varying interval after the onset of disease. While one patient (No. 1) in the present series took one month, the rest three cases developed arachnoiditis in 8 to 15 months. This can be explained on the basis of varied host resistance, virulence of the organism, and promptness in the start of therapy.

These cases of cerebral arachnoiditis, irrespective of their aetiology, produce varied clinical syndromes. In our cases complete blindness, Fröhlich's syndrome, clinical simulation of pituitary tumour and cerebellar lesion were seen. The blindness as the manifestation of arachnoiditis can result from two different ways. A posterior fossa arachnoiditis may produce chiasmatic pressure by dilated third ventricle (Raimondo and Vigorelli, *loc. cit.*), while localised arachnoiditis of opticochiasmatic region compresses the chiasma and leads to various symmetrical field defects and ultimately to complete blindness. In 1931, Craig and Lillie reported 8 cases, while Heuer and Valil (*loc. cit.*) reported 4 of this type in whom opticochiasmatic arachnoiditis was responsible for marked visual loss. In one of the latter's cases, the air studies showed marked dilated ventricles. The authors pointed out that localised forms of arachnoiditis were in fact the clinical presentation of a generalised cerebral disease. This generalised arachnoiditis as they pointed out, was responsible for hydrocephalus. In our cases complete visual loss was associated with posterior fossa arachnoiditis and hydrocephalus. As the opticochiasmatic portion was not explored, it is possible that besides hydrocephalus leading to chiasmal pressure, associated local arachnoiditis of opticochiasmatic region might have been responsible for visual loss in our case.

The clinical presentation of the case (No. 10) simulating pituitary tumour was very atypical. There was a dilatation of sella turcica but no erosion of posterior clinoid processes. This radiological sign in combination with marked visual loss led us to diagnose him to be a case of pituitary tumour. The ventriculography and later exploratory craniotomy of the posterior fossa established the cause as hydrocephalus secondary to arachnoiditis. Although it is well known that internal hydrocephalus can lead to hypophyseo-diencephalic involvement, it is rather surprising to have radiological picture similar to that of pituitary tumour.

In the last case of our series (No. 12) we found the cerebellar presentation. The thickened arachnoid over the cerebellum was responsible for it. Such a condition is familiar to neurosurgeons. Horrax (*loc. cit.*) reported a large number of cases who had cerebellar signs but on operation no pathological process except arachnoiditis was seen.

SUMMARY AND CONCLUSIONS

Twelve cases of cerebral arachnoiditis have been described with their varied clinical presentation. In four cases definite history of tuberculous meningitis was obtained. In one case cranial trauma was responsible for arachnoiditis. In the remaining cases the probable cause was not certain. The possibility of attenuated tuberculous infection has been suggested. The presentation similar to that of Fröhlich's syndrome, cerebellar abscess and primary optic atrophy has been discussed. An atypical case of arachnoiditis with hydrocephalus is recorded in whom the ventricular dilatation produced radiological picture similar to intrasellar or primary pituitary tumour.

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LIPOID PNEUMONIA

Review of Literature with a Case Report

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Waters, Bayne-Jones and Rowntree (1917) first noticed fatal pneumonia in a rabbit following an experimental injection of bromoform in olive oil into the treachea. Laughlen (1925) reported the first four cases of lipoid pneumonia diagnosed at postmortem in which oral medication with liquid paraffin was given to two children, while in the other two oily nasal drops were the causative agents. Similar reports were made by Pinkerton (1927-28). Animal experiments on dogs and rabbits by Corpar and Freed (1922) showed that both vegetable and mineral oils produced a characteristic type of pneumonic changes when injected intratracheally. Pierson (1932) first recognised the condition during life and confirmed it later at autopsy. Ikeda (1935 a) by a detailed pathological study diagnosed seven cases and categorised two patterns of the disease, viz., the acute, diffuse and fulminating type of fatal pneumonitis, i.e., the 'childhood type', and the paraffinoma, i.e., the 'adult type'. The latter needs differentiation from the tumours (Mason, 1955).

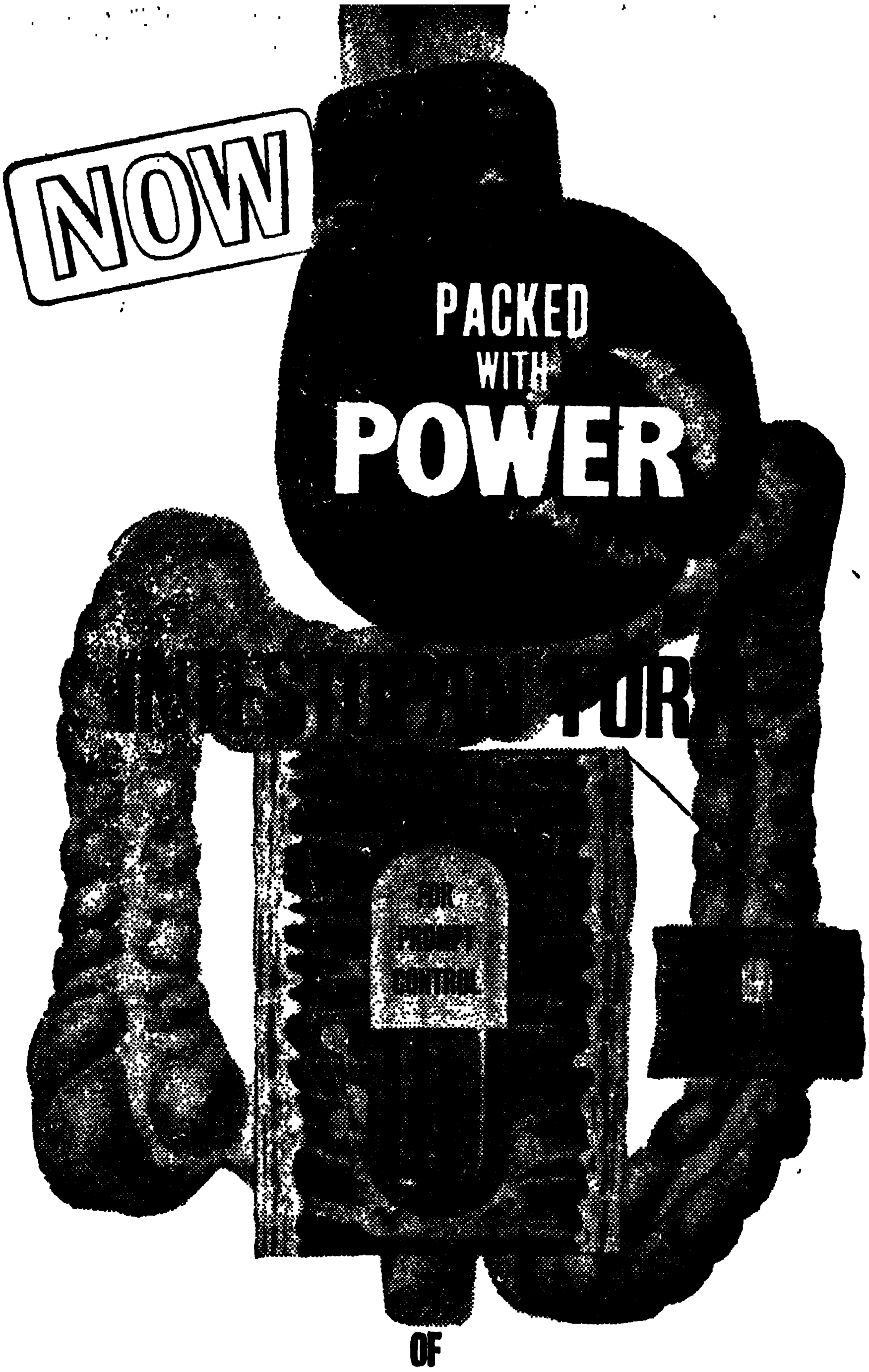
The histopathological features of the oil pneumonias were fully investigated by Pinkerton (1927-28), Ikeda (1937), Paterson (1938) and Graef (1939) in human beings and animal experiments. A foreign body reaction to the oil occurs by an outpouring of macrophages into the alveoli of the lung and is followed by the formation of giant cells and septal fibrosis. Fats hydrolysed to fatty acids produce an acute inflammatory reaction with œdema and necrosis specially with all animal fats and some fats of vegetable origin, such as chaulmoogra oil and peanut oil. However, the other vegetable oils such as the iodised poppy-seed oil and castor oil do not appear to be irritating to the lungs and are removed by expectoration (Brimble Combe *et al.*, 1951). Mineral oils are more innocuous than the vegetable oils (Ikeda, 1935 b). The exogenous sources of the oils are the commonest. In the majority of cases, however, the exact nature and the total amount of oil in the lungs have not been determined by extraction and by physico-chemical analysis.

The respiratory passage is the commonest route of transport (Pierson, 1932), though intestinal absorption (Policard, 1941 ; Frazer *et al.* 1944), vascular transmission (Busquet and Vischniac, 1921), have also been suggested. Right lung was affected more than the left in infants, which follows the aspiration theory (Goodwin, 1934). A foreign body distribution was also observed by Freiman *et al.* (1940) in their review of 47 cases of exogenous oil pneumonias. Inhaled liquid paraffin is rapidly emulsified and then phagocytosed without necrosis in the alveoli. It reaches the latter quite at ease, as medicinal liquid paraffin seems to be non-irritant to respiratory mucosa, and its entry into the trachea, therefore, does not evoke any cough reflex even in a conscious patient. The alveoli are filled with mononuclear cells containing fine paraffin droplets causing patchy consolidation of the lung (Brimble Combe *et al.*, *loc. cit.*). Only, if the oil is in large amount, it can be found as droplets in the bronchi. Cod-liver oil causes a curious reaction by formation of a membrane around the droplets which can be stained by Ziehl-Neelsen's method (Pinkerton, 1928). Fisher-Wasels (1933) and subsequently Paterson (1938), Graef (1939), Kaplan (1941) and others gave a most satisfactory proof of the existence of the liquid paraffin aspiration pneumonia by chemical extraction and analysis.

The usual prerequisites for the inhalation of oils may be, according to Ikeda (1937), Rubin (1947), Brimble Combe *et al.* (1951), some disability of deglutition (a neurologic or malignant disease or congenital malformation), prematurity, constitutional dysfunctions of deglutition, and even excessive dosages of oils (Davis, 1936) and position of the head during instillation (Griesman, 1944). Oily drugs like nasal drops, laxatives and throat sprays, if forcibly given, can cause the disease (Walsh and Cannon, 1938 ; Quinn and Meyer, 1929). Pirie (1932) demonstrated the presence of iodised oil in the lungs when administered to sleeping persons. Endogenous sources of oils were demonstrated from a dermoid cyst rupturing into a bronchus (Lincoln Brown, 1950) and from fatty degeneration of the tumours and even of the large mononuclear cells by toxic substances like antimony trioxide (Gross *et al.*, 1952). The fatal dose of the oils has not yet been established.

The clinical picture is that of a low grade inflammation, and depends on the degree of secondary infection (Non-tubercular Diseases of the Chest, 1954). Varying degrees of cough with fever and a run-down malaise are the normal features in a chronic case. On the contrary, the onset is explosive in children and is characterised by sudden dyspnoea which is out of proportion to the clinical signs in the chest ; but the clinical features may not be distinctive (Rubin, 1947 ; Singer, 1949). Diagnosis is usually based on a history of forced and/or prolonged administration of some oily substances. Patchy consolidation or pneumonitis may present with few clinical signs, and the lesions are not responsive to the antibiotic therapy which can check only the secondary infection.

The presence of oily substance in the sputum is difficult to demonstrate, as it is not easy to get a sample of sputum in children. Moreover, their low general condition does not warrant a bronchoscopic aspiration. But, if this can be done, it is diagnostic (Rabinovitch and Lenderer, 1934). Mantoux test is usually negative. Skiagram of the chest is the most valuable procedure in the diagnosis during life (Pierson, 1932). It shows a diffuse bilateral centripetal haziness of pneumonitis



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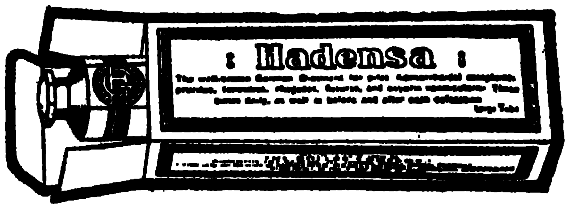
Menthol I.P.	...	2.50 g.
Ichtham I.P.	...	0.20 g.
Oleum Arachis I.P.	...	18.00 g.
Adeps Lanae Base to	...	100.00 g.



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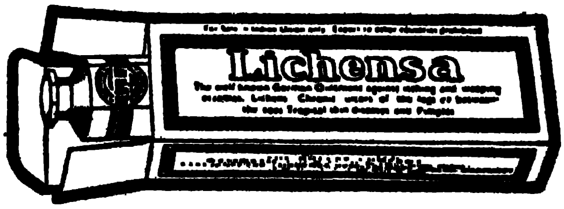
Formula :

Lead Plaster Mass B.P.C.	...	7.50 g.
Ichtham I.P.	...	1.50 g.
Menthol I.P.	...	0.80 g.
Monochlorcarvacrol	...	0.01 g.
Oleum Arachis B. P.	...	22.20 g.
Adeps Lanae Base to	...	100.00 g.



made in india

specially around both the hila. The apices, the periphery of the lung, the costophrenic angles and the pleurae do not show any radiological change. In some cases the shadows may become confluent and may coalesce with each other. The hilar lymph nodes are spared entirely. Pierson (1932) was the first to suspect and diagnose the disease entity on radiological grounds, and confirmed later by postmortem examination.

CASE REPORT

Baby M., aged 8 months, was admitted to the paediatric ward of P.B.M. Hospital, Bikaner, on 30-6-64 with the complaints of sudden development of respiratory distress, fever and cough after having taken liquid paraffin, 2 to 4 teaspoonfuls.

The child's ailments started after the forcible administration of 2 to 4 teaspoonfuls of the drug, in spite of the vigorous protests of the child. The child instantaneously developed a severe cough, perspired a lot and then became extremely breathless. This was followed by a rise in temperature. The patient was then rushed to the hospital. On admission, pulse was 140 per minute, child was dyspnoeic. Alae nasi were working; there was indrawing of intercostal spaces, and respiratory rate was 56 per minute. The child had an apprehensive look. his axillary temperature on admission was 100°F., and there was no cyanosis.

On auscultation, mild crepitations were present bilaterally all over the chest, and breathing was puerile

Investigations—Blood : W.B.C.—14,000 per c.mm., Hb.—10 g. per cent, R.B.C.—2 million per c.mm., E.S.R.—Could not be done, as the veins were collapsed.

Tuberculin test—Negative.

X-ray of lungs (P.A.) showed the following findings :

Bilateral, extensive radio-opacities covering most part of the lung fields except the apices and costophrenic angles on both sides. There was no evidence of hilar adenopathy or any pleural reaction (Fig. 1, *vide* Plate).

Treatment—The following treatment was given :

1st day : Inj. crystalline penicillin, 2 lac units, 4-hourly. Inj. dexamethasone, 0·5 ml. 8-hourly.

There was no improvement in the general or respiratory condition of the child on the 2nd day of treatment. Penicillin was stopped, and tetracycline hydrochloride was started in the form of syrup, in the dosage of 125 mg. t.d.s. Precathemide, 1 amp. 8-hourly, was injected for respiratory distress. Inj. dexamethasone was continued. There was no improvement in the respiratory distress, the respiration rate increased to 67 per minute. The (axillary) temperature now rose to 102°F. The rales and rhonchi also increased and could be heard all over both the lung fields. The child was going downhill. and the case was referred to the E.N.T. specialist for bronchoscopy. But on account of the extensive lesion in the skiagram and the low general condition of the child it could not be done.

On the 3rd day a repeat x-ray showed the same changes. Clinically, the respiratory distress was markedly increased, cyanosis had appeared, pulse became feeble, and gradually the child sank and ultimately expired.

Postmortem could not be done due to the unwillingness of the child's relations.

DISCUSSION

This case comes in the category of acute fulminating type of pneumonitis which came on suddenly and proved fatal in spite of our best efforts. It belongs to the childhood type of Ikeda (1935). No disorder of the deglutition or any neurological lesion was present. The mother of the child had for long been administering liquid paraffin forcibly, whenever the child got constipated, so much so that the child often developed diarrhoea. Just before the onset of the present illness, the child was forcibly given liquid paraffin in spite of much resentment, and the child suddenly became severely breathless and had a bout of 'barking' cough with marked perspiration indicating that a portion of the oil had been aspirated into the lungs. A secondary infection was responsible for the fever which is supported by a raised total leucocyte count (14,000 per c.mm). Peripheral veins were collapsed. Mantoux test was done and was found negative. Skiagram of the chest showed typical appearances of lipoid pneumonia. The child was treated with crystalline penicillin, 2 lac units 4-hourly, I.M., with dexamethasone parenteral, 0·5 ml. 6-hourly, but he showed no improvement. Tetracyclines were started from second day. Still no improvement was noticed and the child succumbed on the third day. However, a case reported by Nagrath and Sapru (1964) who was put on cortisone therapy survived, but it belonged to the adult variety.

Our diagnosis of lipoid pneumonia is supported by the following reasons :

1. Typical history of forcible administration of liquid paraffin when the child protested vigorously. It was immediately followed by the respiratory emergency.
2. Typical radiological signs.
3. Scanty signs and symptoms as compared to the alarming radiological appearances.
4. Absence of marasmus, excluding tuberculous aetiology.
5. A negative Mantoux test in a well built and otherwise healthy child in whom the question of an anergia to Koch's old tuberculin cannot be suspected.

To summarise, the classical history of forcible administration of liquid paraffin followed by typical respiratory emergency with radiological signs and various other evidences in favour, as discussed above, the authors are confident that this particular case was childhood type of lipoid pneumonia. Though, our diagnosis is a presumptive one, it cannot be ruled out. If one is keen enough to keep an open mind, the disease can be diagnosed more often than is believed.

Summary

A case of lipoid pneumonia in an infant is reported. The literature is briefly reviewed. Our emphasis in the diagnosis rests mainly on a careful clinical history, the course of the disease, and on the typical radiological signs.

Acknowledgment

The authors are thankful to Dr. D. G. Ojha, Principal, S. P. Medical College, and Superintendent, P.B.M. Associated Group of Hospitals, Bikaner, for kind permission to report this case.

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STUDY ON THE EFFECTS OF CARBIMAZOLE THERAPY IN HEART DISEASES

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In recent years scientific opinion seems to have grown that probes the perplexed problem of heart failure from a different angle. The concept of antagonising or abolishing the action of thyroid in cases of heart failure dates back to 1878, when Kocher first reported beneficial effects of thyroidectomy in cases of congestive cardiac failure and angina pectoris. Later Riesman (1919), Hamilton (1922), Boas and Shapiro (1926), Rose (1932) and Blumgart *et al.* (1935) also reported favourable results with surgical thyroidectomy in these cases. But, due to apparent hazards encountered with surgical treatment in these patients, this method could never become popular. Gradually, the confidence in this procedure was facing a losing battle in the minds of its supporters.

Trial of antithyroid agents—With the advent of goitrogens and radio-active iodine, these drugs were tried to produce in a safer way the same physiological changes that had been attained through surgical thyroidectomy. Blumgart (1955), again proved pioneers in this field and used radio-active iodine (I^{131}) in a series of 1070 euthyroid cardiac invalids with success.

Antithyroid measures and haemodynamics—Cases with congestive cardiac failure showed marked sluggishness of circulation inappropriate to the metabolic needs or B.M.R. and, therefore, no wonder, the time-honoured therapeutic measures were all directed towards augmenting the velocity of blood flow to a level adequate for metabolic needs of the patient. However, it is commonly observed that this procedure is unavailing in many instances of refractory cases of congestive heart failure. Then, the alternative method to achieve compensation is to lower the B.M.R. with the help of antithyroid measures so that the existing slow circulation meets with thus lowered needs of the body adequately.

Of various antithyroid measures available at present, the surgical treatment has already been abandoned in cardiac cases for overt reasons. Radio-active iodine is not easily available for trial at every clinic and, moreover, it causes irreversible destructive changes in thyroid acini leading to permanent hypothyroidism. Therefore, it was decided to simulate a relatively useful hypometabolic state by using a potent antithyroid drug carbimazole which has been found to be remarkably free from toxicity over many years of continuous use. The aim in the present series was to assess the therapeutic value of depression of thyroid function with carbimazole in cases of chronic heart diseases and to study its effects on B.M.R., blood cholesterol, velocity of blood flow, and E.C.G. It was also decided to observe, investigate and control the secondary consequences likely to arise with the development of hypothyroid state.

MATERIAL AND METHOD

Selection of cases—75 patients from Nilratan Sircar Medical College and Hospitals, Calcutta, were studied, of which 6 cases were of thyrotoxic heart disease and 69 were euthyroid cases. Out of 75 patients, 40 presented with angina of effort and hypertension with or without heart failure and the remaining 35 with congestive cardiac failure. Details of these cases are given in Table 1.

Carbimazole regime—Care was taken to include only those cases whose clinical course had remained practically unchanged over a long time in spite of energetic medical treatment. The dosage schedule of carbimazole employed in this series was to start with a loading dose of 20-40 mg. daily till the patients became symptom-free, followed by 10 to 20 mg. daily for 1 month and 5 to 10 mg. daily for next 2 months. After the patients were symptomfree for 30 months, a maintenance dose of 5 mg. was given daily for a period of 12 to 18 months. Other drugs like digitalis and diuretics were continued and were not regarded as antagonists to the use of carbimazole as all these drugs had been used on these patients without material benefit for adequate periods prior to exhibition of carbimazole.

Clinical details—The age incidence in this series ranged from 16 to 65 years, but the majority of cases was between 30 and 50 years. The sexwise distribution was 53 males and 22 females. Duration of cardiac decompensation varied between 2 and 12 years ; only in 3 cases they were below 2 years. All patients presented with the usual manifestations of cardiovascular disease. Among the physical signs, 32 out of 35 cases of congestive cardiac failure had oedema of feet and sacrum. Palpable and tender liver was present in 28 cases and the engorged neck veins were present in all 35 patients. Cyanosis was present in 13 out of 75 cases. In cases of heart failure with normal rhythm, the pulse rate varied between 80-120 per minute and in cases of auricular fibrillation it varied between 90 and 140 per minute. The blood pressure was observed to be between 170 and 210 mm. of Hg systolic, and 90 to 120 mm. of Hg diastolic, in the hypertensive series of 24 patients. Definite thyroid enlargement was noted only in 6 thyrocardiac cases.

Investigations—The simple exercise tolerance test devised by Master and Oppenheimer (1929) was found not entirely satisfactory for all cases because of the degree of disability shown by our subjects. The only cases in whom undertaking of this grade of effort was permissible were subjected to this test on 3 occasions, immediately after admission, during the period of clinical improvement, and during the final review of the case. In all cases, complete haemogram, E.S.R., urinalysis, blood cholesterol, B.M.R., x-ray chest, E.C.G., and arm to tongue circulation time and in cases of cor pulmonale, additional studies of venous pressure and vital capacity were done at least twice, once before the onset of therapy and finally after clinical improvement or during the final review of the case. Blood cholesterol estimation was done by using modified Lieberman-Burchard reaction. B.M.R. was measured with Collin's modification of Benedict Roth's apparatus. All necessary precautions were observed so that the patients were in a state of complete physical and mental rest before subjecting them to B.M.R. estimation and the measurements were made again and again till readings within error of 5 per cent were obtained. The Aub-Du Bois standards were used to determine the B.M.R. Arm to tongue circulation time was used as an index of the velocity of blood flow according to the method of Winternitz, Deutsch and Brull. The majority of patients was followed regularly for a period of 18 months to 2 years.

RESULTS

Grouping of patients—For the convenience of interpretation, the patients were divided into four groups, A, B, C. and D, as shown in Table 1. The results were excellent, good or poor considering the clinical improvement, laboratory data and the exercise tolerance test. Results were considered excellent when the patients showed marked freedom from symptoms and remarkable improvement in clinical condition and in exercise tolerance test (improved by 75 per cent to 100 per cent) or significant increase in the efficiency to undertake effort which allowed them to take part in moderate activities or rehabilitation in some

TABLE 1—SHOWING THE RESPONSE OF PATIENTS TO CARBIMAZOLE THERAPY

Batch	Diagnosis	Total cases	Number improved	Excellent	Good	Poor
	GROUP A					
I	Angina pectoris and/or paroxysmal left heart failure with thyrotoxicosis	6	5	3	2	1
	GROUP B					
II(a)	Hypertension with angina pectoris and coronary thrombosis	5	4	2	2	1
II(b)	Hypertension with angina pectoris with evidence of bundle branch block	5	4	3	1	1
II(c)	Hypertension with angina pectoris with or without E.C.G. changes of cardiac ischaemia	10	8	5	3	2
II(d)	Hypertension with paroxysmal left heart failure	4	3	2	1	1
III(a)	Angina pectoris with coronary thrombosis without hypertension	5	4	2	2	1
III(b)	Syphilitic aortitis with angina pectoris	2	2	1	1	×
III(c)	Rheumatic aortic valve disease with angina pectoris	3	2	2	×	1
IV(a)	Rheumatic valvular disease with congestive cardiac failure	10	6	3	3	4
IV(b)	Subacute bacterial endocarditis with congestive cardiac failure	2	2	×	2	×
	GROUP C					
V	Auricular fibrilation with congestive cardiac failure	10	6	3	3	4
VI	Pericardial effusion with congestive cardiac failure	3	2	1	1	1
	GROUP D					
VII	Cor pulmonale with congestive cardiac failure	10	6	2	4	4
		75	54 (72%)	29 (38·6%)	25 (33·3%)	21 (28%)

N.B.—The response to carbimazole therapy in Groups A, B, C and D was 83·3, 79·4, 64 and 60 per cent respectively.

useful occupation. Results were considered good when the patients, though completely free from symptoms showed moderate clinical improvement and moderate increase in exercise tolerance test (50 to 75 per cent), but the effort of joining some useful occupation at times broke the limits of compensation. Results were considered poor when the patients were without any significant alteration in clinical state or in any obvious increase in the exercise tolerance test or the cases which improved clinically, but the recurrence of attacks could not be prevented.

Clinical response—5 out of 6 cases of angina and/or left heart failure with thyrotoxicosis included in group A showed striking improvement. The symptoms like paroxysmal dyspnoea, palpitation and praecordial pain disappeared and the capacity to work also increased. The features of hyperexcitability disappeared and the patients were left mentally clear.

The symptoms of angina and the left heart failure associated with hypertension and coronary thrombosis (group B) showed marked improvement in 27 out of 34 cases (79·4 per cent) of which 17 (50 per cent) had excellent results allowing them to undertake four times greater exertion than before without attacks of pain, and the remaining 10 cases (29·4 per cent) had fair results. No change was observed in blood pressure following continuous carbimazole therapy.

22 out of 35 cases (64·7 per cent) of congestive cardiac failure included in groups C and D showed impressive results. They volunteered the information that they were feeling "much smoothed out" and the pounding of the heart diminished or disappeared allowing them to take care of themselves.

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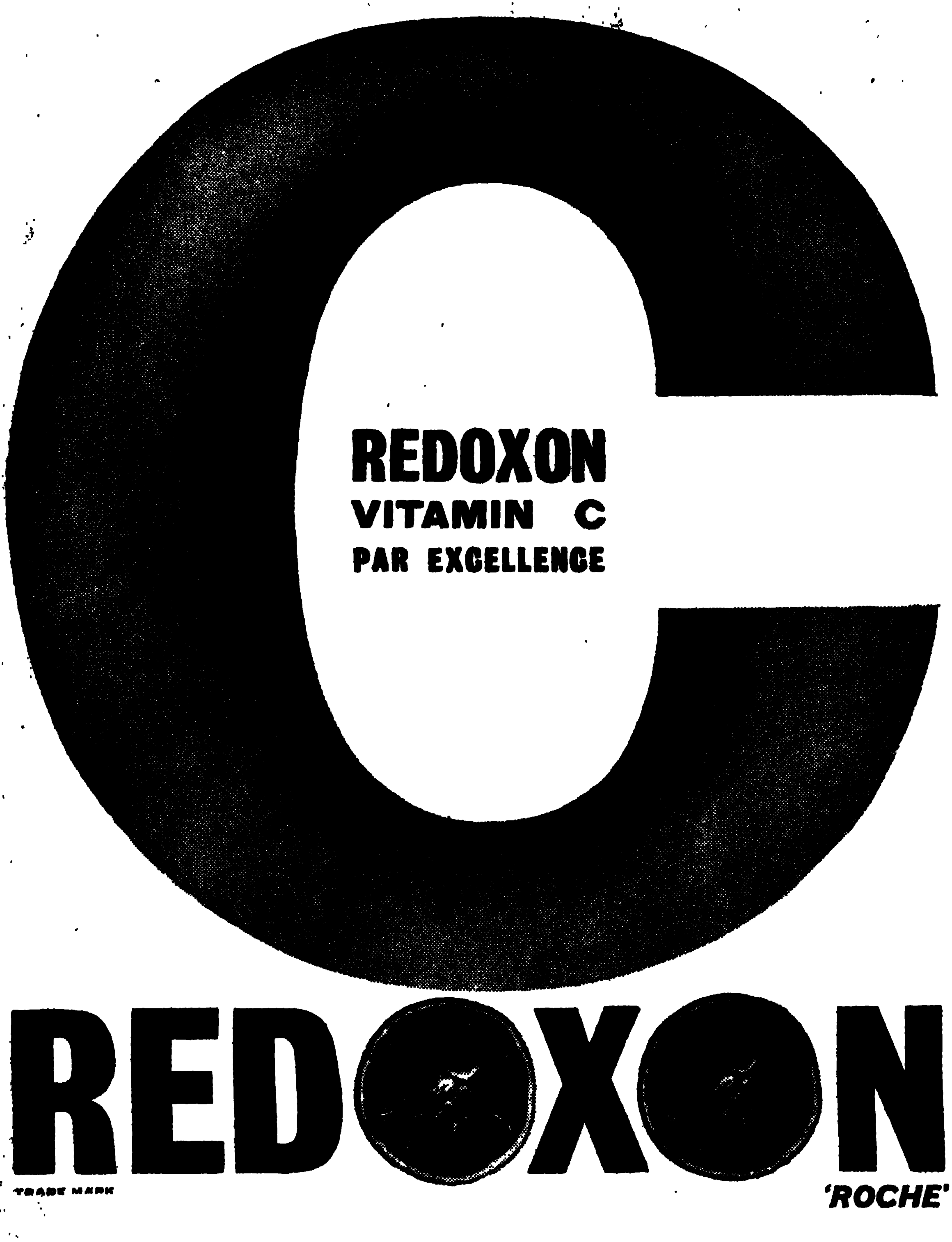

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In certain cases they were able to carry on some useful vocation with much freedom and without distress. By 24 to 36 weeks, the patients noticed that sleep which was difficult to induce even with sedatives, had become easy and sound without medication. Subjects who formally suffered from marked orthopnoea found themselves more comfortable with the use of 1 or 2 pillows. Many patients particularly those who were cachectic noticed increased appetite and gain in body weight. The resistant oedema of feet and sacrum cleared up in 8 to 18 weeks of continued use of carbimazole, along with digitalis and diuretics as mentioned earlier. The moist sounds due to lung congestion also disappeared. Enlargement of liver was reduced. In 5 cases the liver remained palpable even after the failure was controlled, which can possibly be explained on the basis of fibrous hyperplasia due to chronic passive congestion. The heart rate gradually became stable at a lower level. Cyanosis also disappeared in a short period. One of the very valuable observations was that less dosage of digitalis was required to control the heart rate following induction of hypometabolism.

Laboratory and radiological response—Blood cholesterol levels did not rise to a great extent following carbimazole therapy. Chest x-rays did not reveal any alteration in size or shape of the heart except in 3 cases of pericardial effusion where it could not be related specifically to the therapy. Lung congestion was also found to have cleared up. B.M.R. was reduced in most of the cases and the lowest value recorded was minus 20 per cent in the euthyroid series without any distressing symptom of myxoedema. E.C.G. change of disappearance of strain pattern which could be expected, was found in some cases of congestive cardiac failure following induction of hypometabolism. However, it is difficult to explain the disappearance of right ventricular hypertrophy pattern in one case, unless the whole picture is regarded as overload pattern. Arm to tongue circulation time varied between 8 and 32 seconds before the onset of therapy, and it remained the same (within possible limits of variation of 2 to 5 seconds) on induction of hypometabolism in the majority of patients. In a few cases the final reading was prolonged by 5 seconds or more. While the average vital capacity of 1200 to 1500 cc. recorded in 10 patients with cor pulmonale definitely increased in 6 patients by 600 to 1200 cc. after induction of hypometabolism with carbimazole therapy, the remaining 4 patients showed subjective improvement without significant increase in the vital capacity.

Side-effects—Fortunately, despite prolonged use of carbimazole no side reactions of any magnitude or seriousness were encountered in any of these cases except slight decrease in the number of red cells with proportionate decrease in haemoglobin concentration in 2 patients, which was easily corrected by oral administration of iron only. No clinical, radiological or electrocardiographical evidence of myxoedema was observed in any of these cases.

DISCUSSION

It is confirmed from the studies of Blumgart *et al.* (1933) and others that the velocity of blood flow is directly proportional to B.M.R. in normal subjects, thyrotoxicosis, and in myxoedema. Whenever this relationship is not maintained, heart failure ensues. It was observed in this series that the patients who were unable to move about without distress developed the ability to take care of themselves and surprisingly enough, few cases were able to undertake exertion to a great extent without discomfort following carbimazole therapy. This indicates that patients have improved in their "cardiac reserve". However, there appeared differences between the actual work done by patients at rest in this state of relative hypothyroidism and the amount of work which had been done prior to carbimazole therapy. The former being less, it may be rational view that some amount of cardiac energy is stored and this may be termed "cardiac reserve". Whenever there is relative sluggishness of the velocity of blood flow in comparison to B.M.R., cardiac failure ensues. At the level of induced hypo-metabolism, the slow velocity of blood flow would be exactly sufficient for the need of the individual at rest. If the B.M.R. is still lowered to, say, 70 per cent, the circulation would remain compensated.

At the hypometabolic level this cardiac reserve is likely to impart the ability on the part of the patient to undertake moderate exertion without palpitation, dyspnoea and venous engorgement. On the basis of the same principles, expected clinical improvement was noted in the present series following continuous therapy with graded doses of carbimazole consistent with the clinical data. In the euthyroid series, the average basal metabolic rate was plus 20 per cent before therapy and it was kept ranging between minus 10 and minus 20 per cent with the dosage schedule of carbimazole. Blood cholesterol level was observed to be ranging from 200 to 220 mg. per cent on induction of hypometabolism in contrast to 100 to 150 mg. per cent before therapy. Thus it did not show great rise, probably due to the initial low value or the average low fat diet in our patients. This may be regarded as an advantage in Indian patients.

By a glance at Table 1, one can certainly question the reasons for failure of carbimazole therapy in certain proved cases of cardiac failure. A few common points of particular interest have been noted which may stand accountable as grounds for defeat in these cases. Some patients of low age group between 16 and 22 years did not respond adequately to this therapy, probably because the dosage schedule practised in this series was inadequate to depress the active thyroid of this tender age group. Infections like tuberculosis and bronchiectasis were other factors in some cases hindering the adequate fall of B.M.R., perhaps by putting extra load upon the vital centres of the body. The initial low B.M.R. on the negative side was yet another factor in a few cases which did not improve with the practised doses of carbimazole. Perhaps a larger dose of drug may expedite beneficial results in all the cases. A few cases of intractable angina also did not respond to this therapy, probably because long continued ischaemia may have produced diffuse myocardial fibrosis or the state of myocardium may have been such that further support of its functional improvement is not possible in these cases.

CONCLUSION

From the observations of this series and the review of previous works in this field by several workers, there appears no doubt that all advanced, chronic and refractory cases of heart diseases, where chances of improvement are remote should be given a fair trial of medical thyroidectomy with carbimazole. Over and above these cases, there is a large group of cases with a long history of decompensation with moderate exertion which again becomes compensated with bed rest ; as a result, these patients are forced to remain in bed or a chair existence and live as parasites to the society. But as carbimazole therapy has undoubtedly proved the efficiency of improving "cardiac reserve" by confining obligatory working of the heart at a level below its optimal capability and has proved to be the least toxic drug even on prolonged administration, this group also deserves medical thyroidectomy with carbimazole whereby they can be economically rehabilitated.

SUMMARY

75 patients with refractory heart diseases of varied aetiology were subjected to induced hypometabolism with continuous carbimazole therapy. Out of 75 cases, 6 were of angina and/or left heart failure with thyrotoxicosis, 36 were of angina and/or left heart failure with hypertension and coronary thrombosis, 25 were of congestive cardiac failure following valvular heart diseases and 10 cases were of cor pulmonale. In all, 54 cases (72 per cent) showed improvement in 8 to 18 weeks, out of which 29 (38·6 per cent) showed excellent results and the remaining 25 cases (33·3 per cent) obtained good results. One remarkable observation made in this series was the notable decrease in the daily dosage of digitalis required to control the heart rate following carbimazole therapy.

No side effects of any magnitude or seriousness were encountered throughout the period of treatment with the exception of slight decrease in R.B.C. counts of 2 patients which were corrected with oral iron only.

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METHANDIENONE IN PULMONARY TUBERCULOSIS

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The proteins of the body constantly exchange amino acids with the pool, the rate of turnover varying between the tissues. Turnover is relatively rapid, for example, in the liver, gastrointestinal tract and in plasma proteins; while it is much slower in skeletal muscles. The process of incorporation of component chemical radicals into the tissues, the synthetic phase is called anabolism. Conversely, the process of breakdown is catabolism. It is upon the relative balance of anabolism and catabolism that an organism depends for the maintenance of its normal tissues, for growth in early life and for repair and regeneration after tissue injury.

Simple prerequisites for protein anabolism are an adequate supply of the component amino acids in the right qualitative relationship and present within the tissues at the same time. Other factors responsible for protein anabolism are electrolytes, essential trace elements, growth hormone, thyroxine, sex hormone, insulin and freedom from infection.

Factors favouring net protein catabolism are dietary deficiencies of protein or other essential nutrients, ageing, fever, malignant disease, toxic state, burns, trauma, excess corticosteroids, uncontrolled diabetes mellitus, muscular inactivity and denervation.

In a chronic infection like tuberculosis, a negative nitrogen balance persists for a long time, because of primary malnutrition as we see in our country, chronic infection, toxaemia and anorexia. Hence, therapeutic induction of anabolism should be achieved, whenever possible, either by specific correction of primary disease or by specific replacement of deficient hormone or by both. Anabolic steroids may be employed along with antituberculosis chemotherapy as nonspecific therapeutic adjuvants to obtain positive nitrogen balance. This positive nitrogen balance is a sign that the drug exerts a genuine tissue building effect, which in turn is reflected in a gain in body weight. Methandienone, 17 α methyl-17 β hydroxyandrosta 1, 4-diene-3-one, has been shown to promote net retention of protein and calcium under a variety of circumstances of clinical importance. In man, methandienone was the most potent anabolic steroid studied (Liddle and Burke, 1960). The favourable anabolic androgenic ratio has permitted the successful use of methandienone in many of the clinical situations in which a long-tern state of net catabolism or tissue depletion occurs.

Chakravorty (1965) found methandienone to be useful as an adjuvant in a group of 18 patients on an antituberculosis regime for tuberculous lymphadenitis. Argentinine workers (Schiffrin *et al.*, 1961) administered the same anabolic agent to nine patients of pulmonary tuberculosis along with tuberculostatic drugs, and observed appreciable weight gain in all the cases.

Therefore, it was decided to conduct a controlled clinical trial with methandienone to determine its therapeutic effect in pulmonary tuberculosis.

MATERIAL AND METHOD

Fifty fresh cases of pulmonary tuberculosis were admitted in R. B. Sir Gujjarmal Kesradevi T.B. Sanatorium, Amritsar, for this study during March, 1965 to November, 1965. All the patients were diagnosed by clinical, radiological and bacteriological examinations. All patients were put on an average hospital diet consisting of about 3000 calories with approximately 100 of protein every day and were given standard antituberculosis drugs in usual doses, along with iron and multivitamin pills every day. The patients were divided into two groups by random selection and in this way 25 patients were assigned to receive placebo (Group A) and 25 patients to receive methandienone (Group B) 5 mg. daily along with above treatment. The key to the name of the drug or the placebo was kept in a sealed envelope which was not opened till the results had been tabulated and none of the treating physicians knew as to which patients were receiving the drug or the placebo. Methandienone and placebo were continued for 12 weeks in a single daily dose.

A record of weight of every patient was made once every week in both the groups. Each patient was completely assessed, clinically, bacteriologically and radiologically every month, in both the groups. General progress of the patient was recorded and any untoward symptoms pertaining to androgenic activity like breast engorgement or enlargement, oedema, nausea, interference with menstruation, were carefully enquired into.

RESULTS

Group A consisted of 25 fresh untreated cases of pulmonary tuberculosis (14 female and 11 male). Patients were between 16 and 55 years of age. They all completed 12 weeks' course of placebo.

Group B consisted of 25 fresh untreated cases of pulmonary tuberculosis (13 female and 12 male). Their age ranged from 16 to 52 years. All but one male patient completed 12 weeks' course of methandienone. This patient could not stay in the hospital and was excluded from this study.

The initial average weight of group A was 84·3 lb. and in group B it was 82·5 lb. With daily dose of 5 mg. of methandienone in a single dose, the weight gain was comparatively more in group B than in group A. The maximum weight gain in group A was observed during the 5th week, whereas in group B it was during the 4th week. Average weight gain in all weeks ranged from 0·1 lb. to 2·7 lb. in group B while in group

TABLE 1—SHOWING AGE AND SEX DISTRIBUTION OF THE CASES STUDIED

	Male				Female				Total
	16-25	26-30	31-40	41-55	16-25	26-30	31-40	41-55	
Group A	3	1	4	3	6	4	3	1	25
Group B	4	1	4	2	8	1	1	3	24

A it was only from 0·3 to 1·6 lb. The total average gain in weight during 12 weeks in group A was 1·1 lb. whereas in group B it was 15·4 lb. Occasionally there was weight loss in a few individual cases in both groups but on an average there was gain in weight in both groups more in B than in A. There was no significant difference in weight gain in the two sexes. Fig. 1 shows the comparative weight in the two groups.

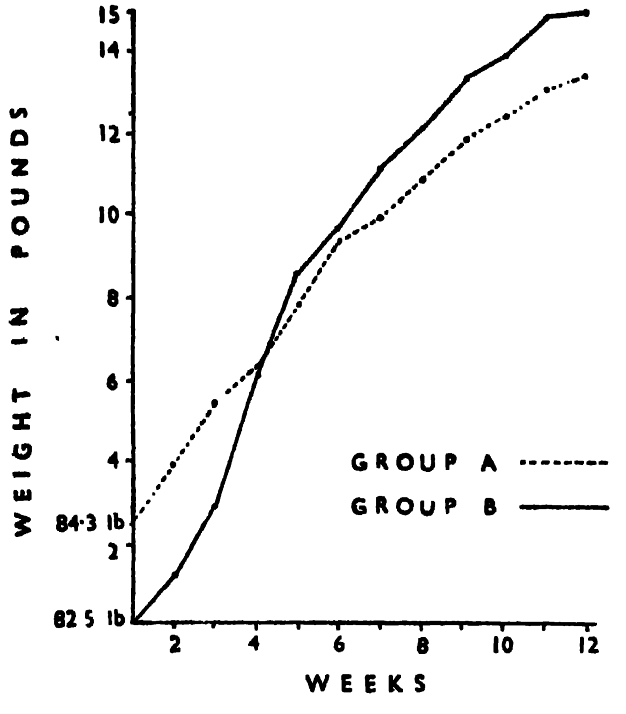

FIG. 1—SHOWING GRAPHICAL REPRESENTATION OF THE COMPARATIVE WEIGHT GAIN IN THE TWO GROUPS OF CASES STUDIED

The administration of the drug did not provoke any digestive alteration or any other disorder. No toxic or side effects or any feature of hyperandrogenic activity was encountered. The addition of methandienone did not interfere with the usual response of antituberculosis drugs, as revealed by successive detailed examinations.

The haemoglobin behaviour was not variable in the two groups and none achieved normal haemoglobin levels by the end of this trial in spite of addition of iron in both the groups.

DISCUSSION

The anabolic effect of methandienone not only leads to gain in body weight but also helps in improvement in the patient's general condition. Patients, who received methandienone in addition to the antibuberculosis drugs and usual hospital diet, showed, a more rapid and continuous gain in weight, which is very helpful for speedy recovery in chronic illness like tuberculosis. In the present series patients were given 5 mg. of the drug daily. whereas many workers have achieved its anabolic effect with higher doses.

Bisht (1963) used 5 mg. tablet, t.d.s. in his patients suffering from malnutrition and observed better utilisation of proteins.

Rundles (1962) does not believe that the anabolic steroids have any erythropoietic action. Our experience in this regard is also the same. All our patients were anaemic at the start of the study. None achieved normal levels in spite of regular intake of iron in both the groups. The increase in haemoglobin levels was similar in both the groups. The primary purpose of the present trial with methandienone, however, was to determine its role in increasing the weight of tuberculosis patients over and above that normally achieved by sanatorium regimen and chemotherapy.

SUMMARY

A controlled clinical trial of methandienone in pulmonary tuberculosis has been conducted in 49 patients on sanatorium regime and antituberculosis drugs. Patients who received methandienone in addition showed a more rapid and increased gain in body weight during the course of treatment.

ACKNOWLEDGMENT

Free supply of methandienone (Dianabol 5 mg. tablets) and placebo was made through the kindness of Dr. M. Paul Anand of Messrs Ciba India Ltd. The help is gratefully acknowledged and appreciated.

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Fig. 1A

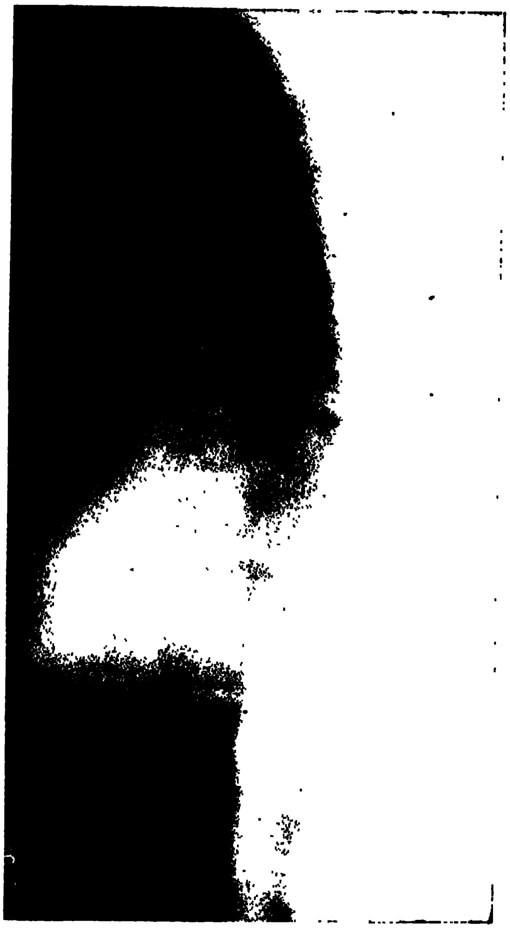

Fig. 1B

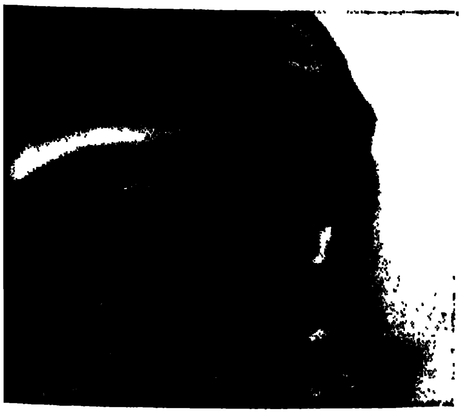

Fig. 2

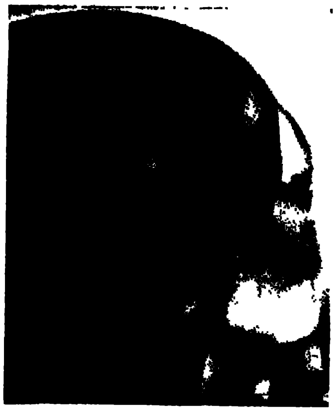

Fig. 3

Fig. 4

Berney and Werner—Value of Tomography in Gas-Myelography and Pneumo-Encephalography (p. 162)

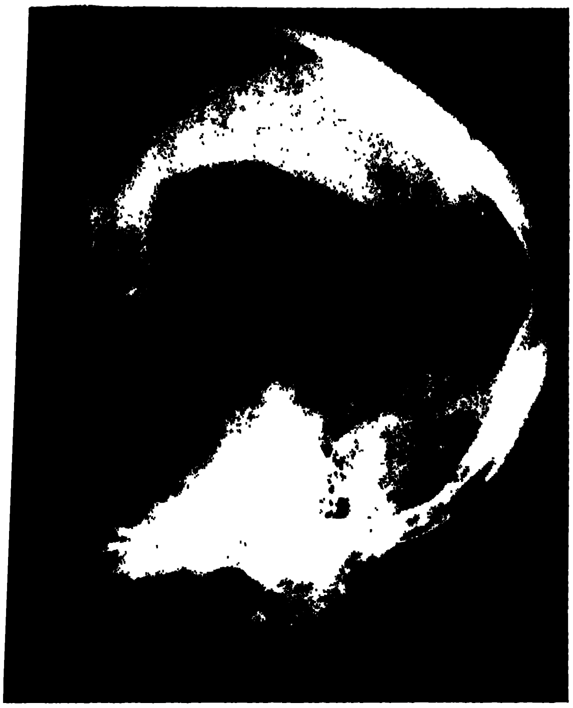

Fig. 1

Natu *et al.* Cerebral Arachnoiditis (p. 164)

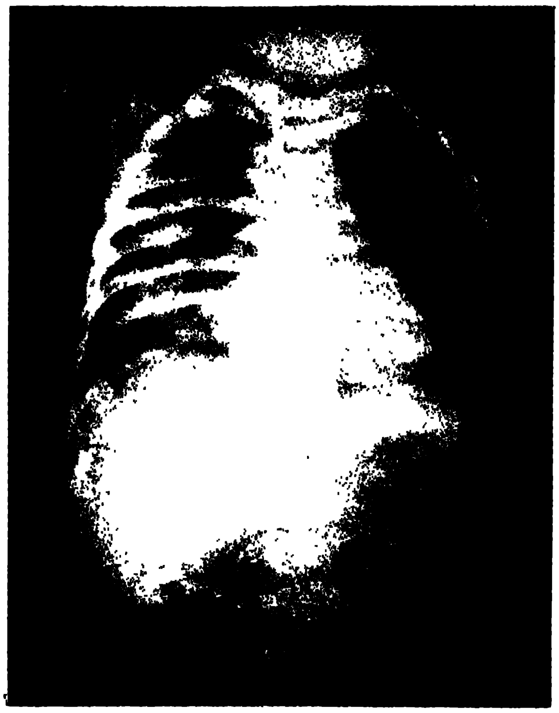

Fig. 1

Saxena and Gupta Lipoid Pneumonia (p. 169)

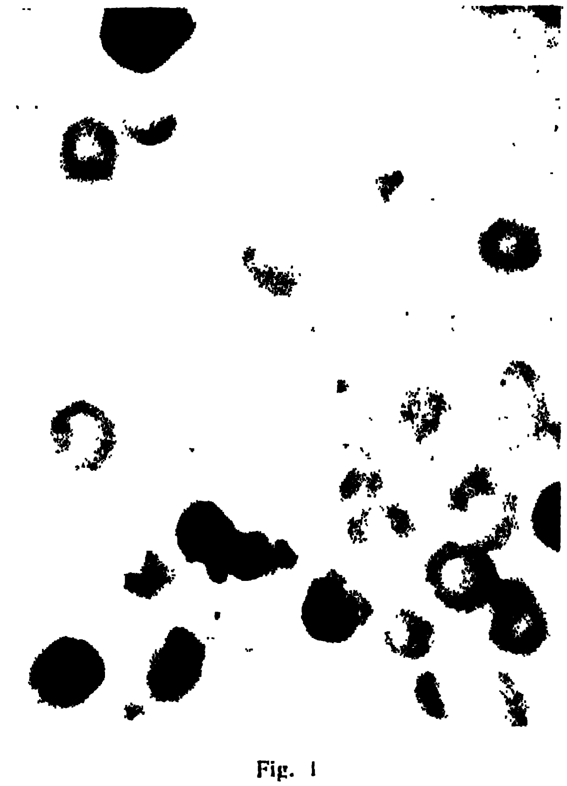

Fig. 1

Srinivasan *et al.*—Thalassaemia Major (p. 181)

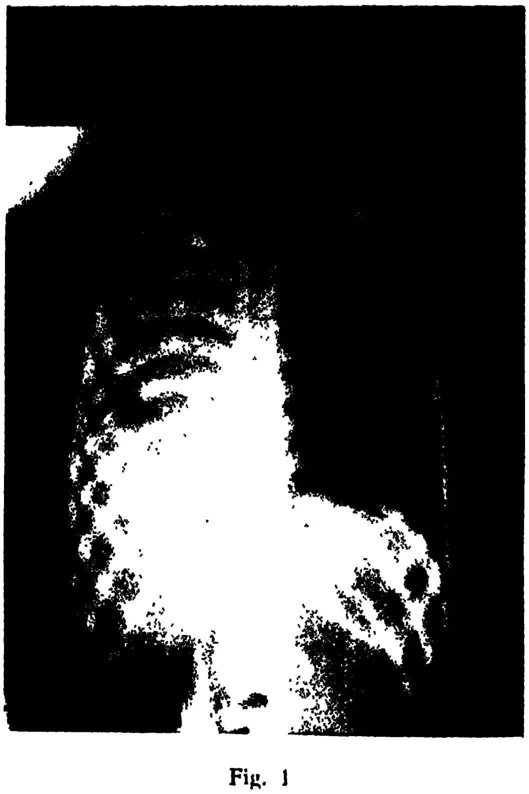

Fig. 1

Basu— Post-Chickenpox Bulbar Paralysis (p. 183)

CASE NOTES

THALASSAEMIA MAJOR

In A Family From Guntur District

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The high incidence of thalassaemia in Mediterranean races has been well known since the original description of the disease by Cooley and Lee in 1925. The occurrence of the disease in many Asian countries has come to light more recently with the reports of several cases from India, Thailand, Indonesia and other countries. The first case from India was described by Mukherjee in 1938, and this was followed by several reports, mostly from Bengal. Chatterjea *et al.* (1957a) have reported an incidence of 3·7 per cent in the population of West Bengal. Chatterjea *et al.* (1957b, c) have also demonstrated the high incidence of thalassaemia-Hb.E disease in the Bengalees. Most of the other reports are from Bombay, Uttar Pradesh, Punjab and Nagpur. Reports from South India are very few.

Thalassaemia major is a serious disease, occurring in the homozygous individual, and manifesting itself as a severe haemolytic anaemia in infants. The other clinical manifestations are splenomegaly, hepatomegaly, acholuric jaundice, mongoloid facies, and other bone changes secondary to marrow hyperplasia. The haematological findings are a severe haemolytic anaemia, reticulocytosis, normoblastaemia, anisocytosis, poikilocytosis, numerous target cells, increased osmotic resistance of erythrocytes, normal or high serum iron, increased proportion of foetal haemoglobin and haemoglobin A_2 in the erythrocytes, and normoblastic hyperplasia of the bone marrow. Radiological abnormalities are commonly seen in children above the age of one year and include widening of the medullary spaces of bones with coarse trabeculae and erosion and thinning of the cortex, failure of tubulation of the long bones, notching and widening of the ribs sometimes giving a 'rib-within-rib' pattern and 'hair-on-end' appearance of the skull vault caused by the vertically arranged trabeculae in the widened diploic spaces. Pathological fractures do occur, but are uncommon.

Thalassaemia minor is a mild form of the disease occurring in the heterozygous individual, causing only mild to moderate anaemia, which is either symptomless or causes only moderate disability. Skeletal abnormalities are rare, but splenomegaly is frequent. Gallstones may develop. The blood smear is characteristic, showing a high proportion of target cells, hypochromia, anisocytosis and poikilocytosis. The red cell count is frequently above normal and the osmotic resistance of the erythrocytes is high in all cases.

Thalassaemia minima is the asymptomatic trait without anaemia, usually detected in the relatives of thalassaemia major cases by means of blood smear examination and the erythrocyte osmotic fragility test.

CASE REPORT

The family with thalassaemia presented here was detected when a Hindu six-month-old baby, the first and only offspring of a consanguinous marriage was brought to one of us (T.S.) with the symptoms of delayed growth, delayed milestones of development and pallor. The child was born normally.

Physical examination revealed that the baby was underweight (11 lb.), and grossly anaemic, but not icteric. Liver was enlarged 3 fingers breadth below the costal margin, firm, smooth and not tender. Spleen was palpable four fingers breadth below the costal margin, firm, and not tender. There was no ascites. Examination of the chest revealed only haemic murmurs.

Investigations—Urine: Albumin, sugar, bile salts and bile pigments—nil; sp. gravity—1016. Urobilinogen 2+. Van den Bergh's test—negative; serum bilirubin—0·4 mg. per cent; thymol turbidity—4 units. Blood VDRL test—negative. Serum iron—300 μg. per cent. Peripheral blood smear (Fig. 1, *vide* Plate)—Target cells predominant (65 per cent). Plenty of normoblasts seen (32 per cent). Fragmented RBC seen. No sickle cells. Haemogram: Haemoglobin—4 g. per cent. RBC—2·6 mill./c.mm. PCV—20 per cent; MCV—77 c.μ; MCH—15·4 μμg.; MCHC—20 per cent; reticulocyte count—6 per cent. Erythrocyte osmotic fragility test showed increased resistance to hypotonic saline. Lysis began at 0·45 per cent and was complete at 0·15 per cent. Skiagrams of chest, long bones and skull—no abnormalities detected. Paper electrophoresis of haemoglobin—no abnormal haemoglobins. Alkali resistant haemoglobin (Hb. F)—11·6 per cent.

Family study—All the other members of the family were apparently healthy and did not have jaundice. One of the siblings of the patient's grandmother died in infancy, but the cause of

TABLE 1—SHOWING DETAILED HAEMATOLOGICAL DATA

Subject	Age	Diagnosis	Hb. (g.%)	RBC (mill/c.mm.)	PCV (%)	MCV (c.μ)	MCH (μμg.)	MCHC (%)	Immature red cells		Foetal Hb. (%)	Serum iron (μg.%)	Erythrocyte osmotic fragility test	
									Normoblast (%)	Reticulocyte (%)			Lysis begins (%)	Lysis complete (%)
Patient	6 months	Thalassaemia major	4·0	2·6	20	77	15·4	20	32	6	11·6	300	0·45	0·15
Mother	18 years	Thalassaemia minima	10·5	4·8	42	87	22·0	25	nil	6	nil	—	0·45	0·20
Father	27 years	Thalassaemia minima	13·0	5·3	52	90	24·5	25	nil	3	nil	—	0·50	0·25

death is not known. Other than this, there is no history of childhood deaths in the family.

A detailed haematological examination of the parents of the child showed that both father and mother were heterozygous for the thalassaemia gene. The haematological findings are summarised in Table 1.

An effort to detect asymtomatic forms of the disorder in other available members of the family covering three generations revealed the presence of a number of heterozygotes apart from the parents of the baby. Blood smear examination and the erythrocyte osmotic fragility test were used as screening tests for this family study. The pedigree chart (Fig. 2) summarises the findings.

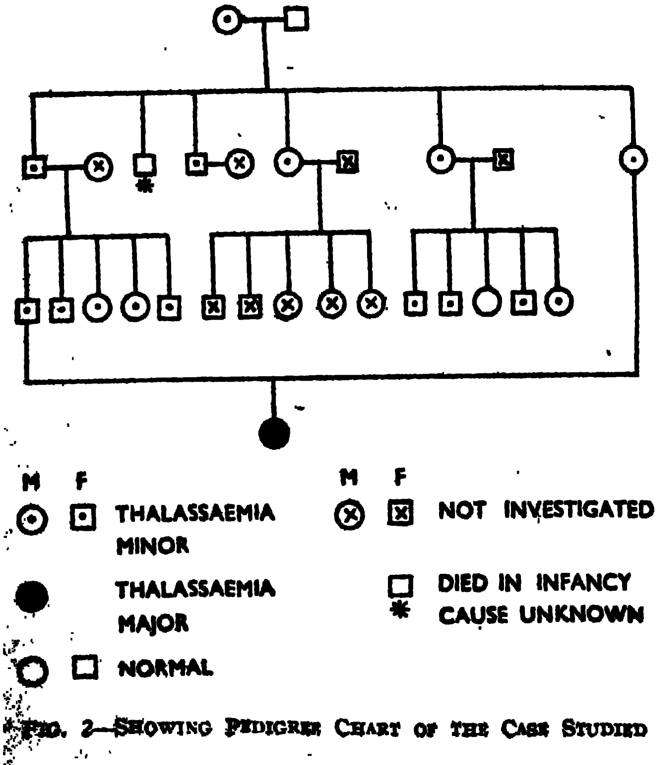

FIG. 2—SHOWING PEDIGREE CHART OF THE CASE STUDIED

DISCUSSION

The clinical features and haematological findings of the patient presented here are typical of thalassaemia major. The absence of skeletal changes is due to the fact that the baby is only six months old. Estimation of haemoglobin A_2 was not possible because of technical difficulties. The absence of foetal haemoglobin in both parents is an interesting feature and was confirmed by repeated testing. Absence of foetal haemoglobin in thalassaemia minor and minima has been reported before (Wintrobe, 1958). Absence of foetal haemoglobin in both parents, its rather low percentage in the patient and the absence of abnormal haemoglobins indicate that the haematological disorder in the patient and his parents is alpha-thalassaemia (defect in alpha chain synthesis).

SUMMARY

A case of thalassaemia major occurring in a family from Guntur district is presented because of its rarity in this region. The family study extending into three generations revealed the presence of a number of persons with the thalassaemia trait.

ACKNOWLEDGMENT

We are grateful to Dr. B. Naganna, Professor of Biochemistry, Guntur Medical College, Guntur, for his kind help in the investigations.

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POST-CHICKENPOX BULBAR PARALYSIS

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Neurological complications like encephalitis, myelitis, hemiplegia and polyneuritis have been reported following chickenpox. There are very few references in the literature about occurrence of acute bulbar paralysis after chickenpox. A case of acute bulbar paralysis which occurred in a young boy, 18 days after appearance of chickenpox rash is reported in this paper. The paralysis was so extensive that an emergency tracheostomy had to be performed to overcome the respiratory obstruction consequent on his inability to swallow the saliva.

CASE REPORT

A.S.T., male, aged 12 years, while recovering from chickenpox, about 18 days after the appearance of the rash, suddenly became ill with cough, dysphagia, vomiting and shortness of breath. The local tea estate doctor thinking that the patient had developed pneumonia gave him penicillin injections for the first 24 hours. As the child's condition deteriorated rapidly he was referred to the General Hospital, Munnar, which is the central hospital for this tea garden medical practice.

On examination (3-4-65), a fading chickenpox rash was seen. There was no fever. The patient looked very ill. He was unable to answer questions. There was a rattle in his throat. His throat was full of saliva which he was obviously unable to swallow or spit out, and there was bulbar paralysis with complete absence of pharyngeal reflexes.

Cranial nerves—Bilateral sixth lateral rectus paralysis, no facial paralysis; the patient was unable to lift his head from the pillow due to weakness. Power—He complained of weakness all over the body but there was no evidence of any paralysis of his limbs. His legs seemed to be much weaker than his upper extremity. Tendon reflexes—Biceps, triceps and supinator jerks of both sides sluggish; knee and ankle jerks were absent on both sides. Abdominal reflexes were present and plantar reflexes were normal. Sensation—He complained of pain and tenderness of his calf muscles but there was no sensory loss anywhere. Chest—Trachea was shifted towards the right side; breath sounds were uniformly diminished all over the right side; a few crepitations were heard over the right side posteriorly.

Investigations—X-ray chest (3-4-65) showed atelectasis of the right lung (Fig. 1, *vide* Plate).

Screening of the chest revealed no evidence of diaphragmatic paralysis.

Blood (4-4-65): Hb.—80 per cent. R.B.C.—4,130,000/c.mm. W.B.C. — 11,200/c.mm., with polymorphs 74 per cent, lymphocytes 19 per cent, monocytes 2 per cent, eosinophils 5 per cent.

Urine (4-4-65): nothing abnormal detected.

Treatment—The patient was immediately (3-4-65) taken to the operation theatre and an endotracheal tube was passed without anaesthesia. Secretions in the throat and from the endotracheal tube were aspirated with an electric suction apparatus. The patient felt immediate relief and his colour improved. Tracheostomy was then performed under local xylocaine infiltration. Endotracheal tube was withdrawn and a metal tracheostomy tube introduced. We tried to replace this metal tracheostomy tube by a cuffed rubber tracheostomy tube in order to keep the air passage completely dry but as the patient complained of pain when the cuff was inflated we had to replace this by ordinary metal tracheostomy tube again.

The patient was put on broad spectrum antibiotics, i.v. betnesol followed by prednisolone by mouth, vitamin B complex and vitamin B_1 injections. Intragastric drip feeds were given during the first three days when he was unable to swallow, and he had also intermittent oxygen.

He was nursed head down and on one side. His position was changed every now and then, and he was encouraged to take deep breathing exercises as best as he could.

Follow-up—On 7-4-65, i.e., four days after admission the patient was able to swallow satisfactorily. On the next day the tracheostomy tube was removed. He was discharged from the hospital on 17-4-65. At the time of discharge he was able to walk with help. His sixth nerve paralysis was still present but his bulbar paralysis had completely cleared. On 28-4-65 he reported for a follow-up examination. Apart from absent ankle and knee jerks there was no abnormality at that time.

Late investigations—In view of his condition, lumbar puncture was not performed at the beginning. C.S.F. examinations on 14-4-65 showed one cell per c.mm., proteins 140 mg. per cent; globulin not increased; Pandy's test—negative; sugar—60 mg. per cent and chlorides—720 mg. per cent.

COMMENT

Acute bulbar paralysis is a medical emergency. In this condition the patient is able to breathe, but is in danger from his being unable to swallow. If he is on his back, in such extensive paralysis of the muscles of swallowing, secretions accumulated in the throat are aspirated into the lungs causing atelectasis and aspiration pneumonia. As an emergency he should be turned on to his face or on one side, and the foot of the bed raised. This patient had to be transported from a distance of nearly 20 miles in an ambulance. His condition would not have been so bad if during the journey he was put on his side rather than on his back.

The two important causes of acute bulbar paralysis are acute anterior poliomyelitis and acute polyneuritis. From the C.S.F. report there is no doubt that this patient had an attack of post-chickenpox polyneuritis of Guillain-Barre type affecting bulbar nerves. C.S.F. on 14-4-65 showed typical albuminocytologic dissociation. It is worth mentioning here that in both bulbar polio and bulbar paralysis due to acute polyneuritis, the recovery is complete and quick provided we can tide the patient over the initial crisis.

The first contribution of major importance in the management and significance of non-mechanical ventilatory obstruction dates from 1943, when Galloway (1943) produced his report on the benefits of tracheostomy in poliomyelitis. In 1953, following the outbreak of poliomyelitis in Copenhagen, Professor Lassen (1953) pointed out that poliomyelitis deaths were due principally to deficient ventilation. This formed the real basis of the modern application of the use of tracheostomy in a wide variety of conditions including bulbar paralysis.

During the initial stage of the illness, for about 48 hours of admission to the General Hospital, the patient was rather unco-operative and semiconscious. We thought that he was suffering from encephalitis. This must have been a manifestation of anoxia from atelectasis and pneumonia.

Underwood (1935) reported six cases of polyneuritis out of 120 cases of neurological complications of chickenpox. Out of which one had bulbar involvement. Miller *et al.* (1956) reported five cases of bulbar involvement after chickenpox. In Miller's cases paralysis appeared 7 to 20 days after onset of the rash (average 11·2 days). In this patient paralysis developed on the 18th day. Rab and Choudhuri (1963) reported in their patient muscular weakness, sensory loss and some evidence of bulbar paralysis. Their patient also made complete recovery. Konar and Mondal (1965) reported a case of acute polyneuritis after chickenpox. In their patient there was no bulbar involvement and there was considerable increase in cells of C.S.F. up to 32 per c.mm. In the present case there was no rise in C.S.F. cells at all. He made a much quicker recovery than the case reported by Konar and Mondal (*loc. cit.*). Haymaker and Kernohan (1949) reported 50 cases of death from respiratory failure in post-chickenpox neuritis. Perhaps at that hime the management of bulbar paralysis particularly the importance of tracheostomy was less well understood.

SUMMARY

A case of post-chickenpox bulbar paralysis is reported. The aetiology and management of the condition are discussed. The patient made a rapid and complete recovery. The one factor that is more important than any other, even including antibiotics and corticosteroids, in such conditions is to keep the respiratory tract free of secretions by tracheostomy and frequent aspirations. If he is thus kept alive the natural powers of recovery take over.

ACKNOWLEDGMENT

Thanks are due to Dr. R. Mahadevan, Chief Medical Officer, for permission to report the case and for valuable advice in preparing the notes, to Dr. V. L. Rangan for performing the tracheostomy, and to Surg. Lieut. Commdr. K. S. Gupta, Pathologist, Naval Hospital, Cochin, for examining the specimen of C.S.F.

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PSEUDOMYXOMA PERITONEI DUE TO MUCOCELE OF THE APPENDIX

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When at operation in a patient with signs and symptoms of either appendicular or peptic ulcer perforation, the surgeon finds gelatinous material in the peritoneal cavity, it is probably a case of pseudomyxoma peritonei from a ruptured mucocele of the appendix.

Mucocele is found in 0·1 to 0·5 per cent of surgically removed appendices. Only a small percentage of these ruptures, to give the so-called "Jelly Belly".

As described by Fraenkel (1901), pseudomyxoma peritonei, due to ruptured appendicular cyst, is rare; a necessary antecedent is a distended and aseptic or a relatively aseptic appendix which is sufficiently free from surrounding adhesions to allow perforation into the general peritoneal cavity to occur. Werth (1844) had described the pseudomyxoma peritonei, but it was ascribed to a ruptured pseudomucinous ovarian cyst.

Mucocele of the appendix was first described by Rokitansky (1842) who called it hydrops of the appendix. Since then, from a study of 111,000 cases from various clinics in England and also from review of literature, over 500 cases have been reported. But only a few of

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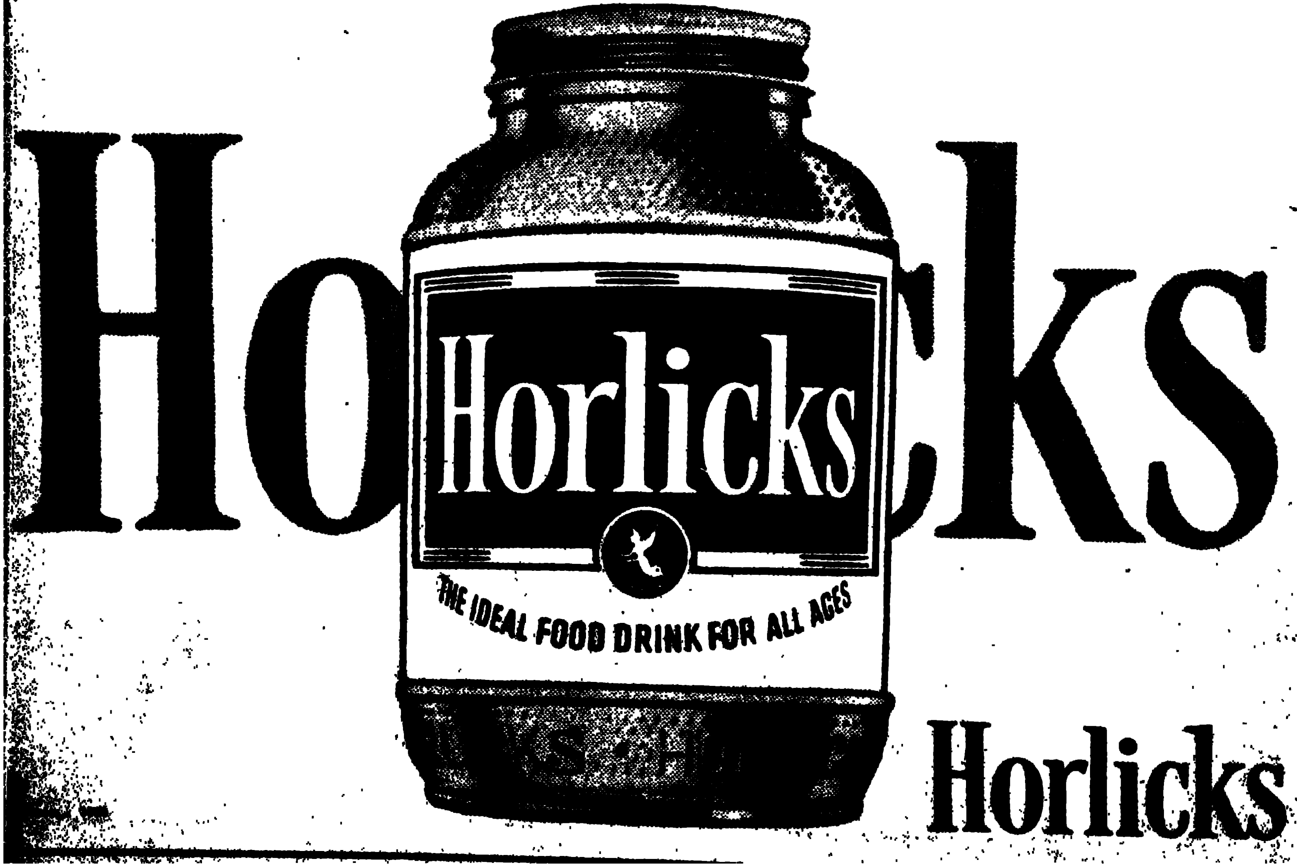

these are said to have ruptured, to give rise to pseudomyxoma peritonei. Of these cases, seldom was a pre-operative diagnosis made. Review of literature on pseudomyxoma peritonei points out that pre-operative diagnosis could usually be made on x-ray films (Ungar and Robert, 1965).

CASE REPORT

T. N., a white female, aged 39 years, was admitted to St. Mary's Hospital* in Passaic, N.J., on 21-5-65, with complaints of severe abdominal pain in the right lower quadrant. The pain was of acute onset and soon referred to the left lower quadrant which then became generalised and more severe. At this time the patient became nauseated but no vomiting or other symptoms were noted. The past history and family history were essentially negative.

On examination, temperature was 103°F ; pulse 120, respiration 25 per minute ; B.P. 110/80 mm. Hg. Lungs were clear to percussion and auscultation. Heart sounds were normal. Abdomen was markedly tender in all quadrants, with peritoneal rebound. There was a slight swelling of the lower abdomen with spasm of both recti. Other systems were essentially negative.

Investigations—Urine : 1+ albumin ; otherwise negative. Blood : RBC—3·58 mill./c.mm. ; WBC—7,000/c.mm., with poly 70 per cent, eosino 1 per cent, lympho 25 per cent, mono 4 per cent. Platelets adequate in number.

X-ray—Flat plate of abdomen showed mild functional ileus, the cause of which was not evident. Chest was negative.

Provisional diagnosis—Peritonitis due to ruptured tubal pregnancy.

Course in hospital—On admission, the patient was prepared for surgery and taken to operation theatre. Laparotomy was done under general anaesthesia. The abdomen was seen to contain large amounts of pale yellow, thick, slimy and gelatinous material, almost thick as jelly, which could not be aspirated by suction tube. This material had to be "shoveled out" in handfuls. The appendix was found to be unusually broadened, enlarged, measuring up to 3 cm. in width. The base of the appendix and the caecum were oedematous and congested. The ovary and tubes although covered by this thick gelatinous material were not grossly abnormal.

Pathological report—"The appendix measures 3·5 cm. in length, up to 3 cm. in diameter. The serosal surface presents adherent fat tissue. The lumen is dilated at the proximal end of the specimen. Projecting laterally for a distance of 1 cm. from the tip of the appendix is a glistening, mucoid-containing cylindrical structure thought to be a lateral 'diverticulum' of the appendix. This measures 2 cm. in diameter and projects for a distance of 0·6 cm. from the serosal aspect of the appendix. When incised the dilated lumen of the appendix is seen to contain mucoid secretion. On gentle probing of this diverticulum there is seen a lumen which measures up to 0·3 cm. in diameter. This has an opening communicating with the surrounding adherent mucoid secretion on the surface of this diverticulum (Figs. 1 and 2).

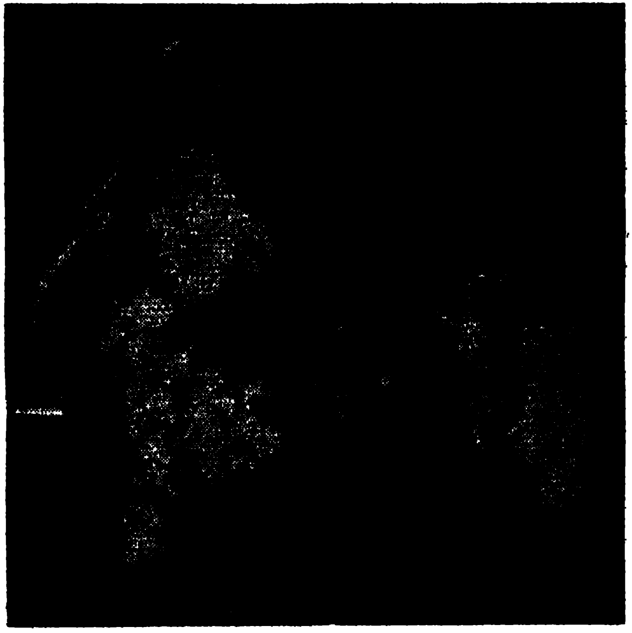

FIG. 1—MUCOCELE OF APPENDIX SHOWING APPENDICULAR DIVERTICULUM WITH LUMEN CONTINUING WITH THAT OF THE APPENDIX

FIG. 2—CUT SURFACE OF MUCOCELE OF APPENDIX SHOWING GLISTENING APPEARANCE, LUMEN OF APPENDIX AND ITS DIVERTICULUM

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* From the service of J. Catania.

Microscopic: Sections reveal portions of appendiceal wall with thickening due to fibrosis, oedema and infiltrating lymphocytes and eosinophils. The mucosa presents tall columnar mucus-secreting epithelium with adherent mucoid secretion" (Fig. 3).

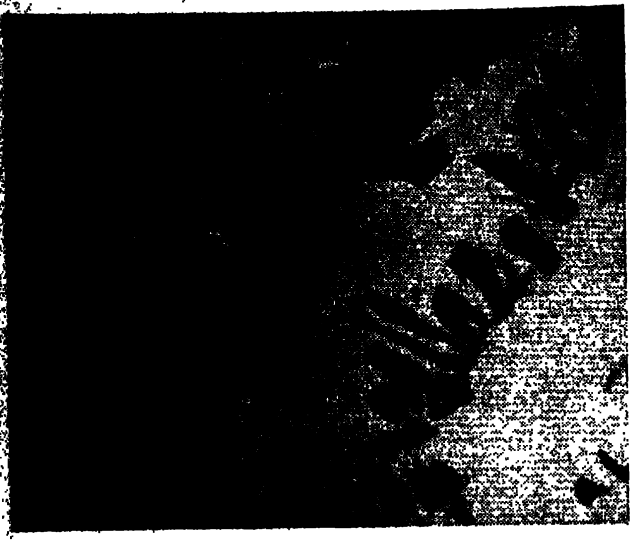

FIG. 3—MUCOCELE OF APPENDIX SHOWING THICKENING OF APPENDICEAL WALL DUE TO FIBROSIS AND TALL COLUMNAR CELLS SECRETING MUCUS. ×75

Diagnosis—Mucocele of the appendix with acute and subchronic inflammatory reaction.

The patient had the usual postoperative course and was discharged ten days later.

DISCUSSION

Aetiology—The condition has been reported to originate in the appendix with an actively secreting mucosa due to a gradual progressive stenosis of its base leading to obstruction of the lumen proximally without any interference with the blood supply.

Bergen (1950) proved experimentally in rabbits that mucoceles could be easily produced by ligating the appendix base, leaving the blood vessels unobliterated. As regards, the pseudomyxomatous appearance of the peritoneum, some authors like D'Aunoy (1934) and Willis (1952) maintain that pseudomyxoma is caused by transplantation and continuous growth of columner cells cast off from the lining of the mucocele. On the other hand, others like Trotter (1910), Rubinitz and Herman (1943), Cheng (1949), and Carleton (1955) state that while most of the mucin is extruded from the mucocele, it is the reaction of the peritoneum as it enfolds in this foreign substance which produces the typical appearance. As a result of this foreign body peritonitis, the peritoneal endothelium may become cuboid or columnar and may presumably undergo malignant change. Carleton (*loc. cit.*) also states that in mucocele, three distinct histological changes are recognised, viz., glandular dilatation, papillary formation and epithelial atrophy. He further states that "it has been proposed that the papillary formations found in mucoceles represent a hyperplasia of the epithelium of the appendix or even early adenocarcinoma. Increased intraluminal pressure causes dilatation of the gland of Lieberkuhn which consequently is at the expense of the lamina propria. The rupture of such a mucocele at this time, when it is lined by hyperplastic epithelium, could possibly lead to the development of a peritoneal pseudomyxoma."

The processes of absorption, organisation and encapsulation are especially marked in the great omentum which is greatly thickened and appears to be transformed into congeries of translucent cysts.

However, a precise categorisation of this condition as a benign or malignant process, or even the question as to its mucinous or pseudomucinous nature, has not yet been settled. Various staining and pH studies have been utilised to determine whether the material is mucinous or pseudomucinous.

Some appendicular mucoceles seem to be malignant. According to Woodruff and MacDonald (1940) the percentage was 6·6 in 146 cases of mucoceles of the appendix.

Signs and symptoms—Most mucoceles occur after the age of thirty-five and are symptomless. As already pointed out, in a very few cases was a pre-operative diagnosis made. Most cases are discovered accidentally at postmortem, some at appendectomy or hernia operations.

Ruptured mucocele giving rise to pseudomyxoma peritonei may resemble the picture of a perforated peptic ulcer or appendix. If the accumulation of gelatinous material be slow, the symptoms arising would be abdominal fullness, pain, constipation, nausea, vomiting, anorexia, weakness and even finally intestinal obstruction. In this category, some reported cases have survived 10-20 years.

The general appearance of the abdomen at laparotomy may be indistinguishable from generalised carcinomatosis, but the patients may not appear as ill as with abdominal carcinomatosis.

As the symptomatology is not very helpful in diagnosis, in some cases the diagnosis may be made by radiography. A plain radiograph of the abdomen may show superficial calcium deposits within the right lower quadrant mass. On barium enema examination, the appendix usually fails to fill and a round, sharply outlined, soft tissue mass is seen in the caecal region. Among the differential diagnoses to be considered are: appendiceal carcinoid, caecal adenocarcinoma, ovarian cyst, appendiceal abscess, retroperitoneal tumour, and occasionally urinary calculi (Elson, 1958).

Treatment—By and large, in an unruptured mucocele of appendix, benign or a slowly progressive malignant one, treatment consists of removal of the source. In a ruptured mucocele, pseudomyxoma peritonei may disappear following removal of the ruptured mucocele. In advanced cases, ileocolic resection may be necessary.

Reaccumulation of intraperitoneal deposits may be troublesome. Radiation, by x-ray or radium, has been claimed to give excellent results despite extensive peritoneal deposits and adhesions.

In conclusion, the surgeon should bear in mind that rarely he may come across one of these cases of mucocele of the appendix with or without pseudomyxoma peritonei. Although the pre-operative diagnosis is difficult, on laparotomy he should not label these cases as carcinomatosis and give the patient a hopeless prognosis. Pseudomyxoma will respond excellently to x-rays and radium following local resections.

SUMMARY

A case of pseudomyxoma peritonei due to ruptured appendicular mucocele is described. The literature is reviewed. The importance of establishing the diagnosis is emphasised because it enables the surgeon to choose the proper treatment.

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MALLORY-WEISS SYNDROME WITH HAEMOTHORAX

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Mallory and Weiss in 1929 first reported a gastro-oesophageal laceration associated with or induced by vomiting and reviewed fifteen cases in their first report. The first successfully managed case was reported by Whiting and Baron (1955). Recently Byrne and Moran (1965) reported three cases successfully treated with surgery.

CASE REPORT

This was the emergency admission of this 46-year old, white female, who was admitted with the complaint of repeated vomiting of two days' duration followed by haematemesis and melaena. She was a known alcoholic, consuming more than 8 bottles of beer per day for 30 years. The physical examination revealed a middle-aged white female, in semicomatose condition without pulse or blood pressure. The skin was cold and clammy, pupils were slowly reacting to light. An examination of the heart showed sinus tachycardia without evidence of cardiomegaly. Clinical examination of lungs showed presence of fluid in the left pleural space. Abdomen was soft, liver was palpable three fingers below right costal margin, with smooth and nontender margin. Spleen was not palpable. The remaining examination was unremarkable.

Blood was drawn immediately and tests showed normal clotting and bleeding time, with prothrombin time 30 per cent of normal control. In spite of vasopressor drugs and blood transfusion the patient could not be recovered from the shock.

At autopsy four vertically inclined lacerations of oesophagus were observed, the smallest one being 1 cm. and the largest 7 cm. All lacerations had had rugged edges, and were penetrating the muscular wall of the oesophagus. There was communication between the lumen of oesophagus and the para-oesophageal space, which was filled with clotted blood. There was rent between para-oesophageal space and left pleural space, communicating between the two spaces. The left pleural space contained about 800 ml. of clotted blood. The mucous membranes of the stomach and duodenum were normal. Lungs showed passive hyperaemia. Liver showed changes consistent with portal cirrhosis.

DISCUSSION

Recent literature has dealt with cases found at autopsy as well as at surgery. By now, about 40 patients have been reported in the literature. On reviewing case reports of these, some conclusions can be drawn which may help in future, in the recognition of this disease.

It is obvious from the increasing number of reports in the current literature that many cases of this syndrome must have been missed in the past. The forceful vomiting of nonhaemorrhagic material followed by haematemesis is reported in 66 per cent of patients in the cases. Absence of this symptom does not exclude the disease. The haematemesis has been reported in the absence of retching, but there were other precipitating factors (gastritis, ulcer, tumour or haemorrhagic disease).

Experimentally Atkinson *et al.* (1961) produced lacerations of oesophagus by increasing intraluminal pressure to 150 mm. Hg. At present we have no better explanation for the pathogenesis of this syndrome.

These lacerations are not seen at x-ray examination, but skiagraphy has to be done to exclude other causes of haematemesis, like ulcer. The objective evidence of the disease can be only obtained at scopic examination.

SUMMARY

A case of Mallory-Weiss syndrome with alcoholism and portal cirrohis is reported. This very unusual combination of three has not been reported in the past. However, significance of this combination is not understood. Recently alcoholism is not favoured as a precipitating factor of this syndrome, however, it has been reported. Haemothorax in combination with this syndrome though not reported is not without logical possibility.

ACKNOWLEDGMENT

I am thankful to Dr. H. Yoder, Chief of Medical Service at Lakewood Hospital, for allowing me to publish this report.

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OCULAR DRACUNCULOSIS

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The incidence of dracunculosis is common in certain parts of India like Rajasthan. The guinea worm affects usually the lower limbs most commonly. To the author's knowledge no case has so far been recorded in the world literature of a guinea worm removed from the subconjunctival space. Noronha, quoted by Craig and Faust (1951), found a guinea worm in an infected frontonasal tumour, mistaken for epidermoid cyst.

Geographical distribution—According to Blacklock and Southwell (1951) guinea worm is found in the tropics and subtropical countries like India, Africa and South America. According to Craig and Faust (*loc. cit.*), in India, Jodhpur is a highly endemic area for the guinea worm. Its spread is facilitated due to the use of step-wells (*bawris*) in Rajasthan.

Habitat—(a) Adult females : These are found in the subcutaneous tissue chiefly of the leg, ankle and foot.

According to Belding (1952) the incidence in foot and ankle is 32 per cent, in the leg 50 per cent, arm 9 per cent, trunk 8 per cent. But Chandler (1959) has put the incidence in the foot as high as 90 per cent.

(b) Larvae : The microfilariae are found only in the ulcerated surface, in the centre of which the prolapsed uterus of the adult female is often visible. The larvae come out of the ruptured uterus of the female and so reach the water when the affected part is being bathed.

(c) Infective larvae : Developmental forms occur in the body of certain crustacea of the genus Cyclops, e.g., *Cyclops quadricornis* and *Cyclops coronatis*.

Morphological characters — (a) Adults : The male measures about 2 cm. in length. It has only been found twice. The adult female measures up to 120 cm. in length by about 15 mm. in breadth. The head is provided with a chitinous shield. The vulva is very close behind the head. The tail is curved strongly into a hook shape. (b) Larvae : They come out from the ulcerated area on skin.

Life history—The larvae from the lesions on man's skin reach water and are ingested by the Cyclops. They penetrate the wall of the intestine and develop in the body cavity to the infective stage. The cyclops, containing the infective larvae, is then swallowed by man in drinking water. The digestive juice destroys the cyclops but the larvae remain unaffected and penetrate the intestinal wall and proceed to wander in the tissue till they become adult.

The male often dies after fertilising the female which then migrates to the legs or ankle or any other part of the body which is habitually in contact with water.

The time which elapses between the entry of larvae contained in cyclops into man's body and the appearance of the gravid female at the surface of the skin is about nine months or more. On the skin of the affected person, a bleb forms which breaks later on. In the small pit in the centre of the ulcerated area thus exposed, the prolapsed uterus is seen as a whitish point liberating larvae freely when water is poured.

Pathogenicity—The worm causes the disease dracunculosis in man. The clinical feature is the ulcer and secondary infection along the track of the worms, as it lies extended in the intramuscular planes. Severe inflammatory reactions may result.

Diagnosis—It is possible only when the worm appears on the skin surface. A few drops of water are placed on the ulcer and left for some minutes. The water is picked up in a pipette for a coverslip preparation.

Treatment—There is no specific treatment for the condition. When the bleb ruptures and the worm appears it is twined round a stick as it emerges.

CASE REPORT

A Banjara girl, aged 12 years, came with a swelling in the right eye, of two months' duration. She complained of irritation and lachrymation in the eyes. Both feet were unaffected. The temperature was normal. The vision was normal.

The swelling was of round shape, about 4 mm. in diameter, under the bulbar conjunctiva. On slitting open the overlying tissue, it was surprising to find a guinea worm in the wound. It was a dead worm, 7 inches in length. The worm was removed in its entirety and the conjunctival wound was closed. Recovery was uneventful.

SUMMARY

The case of a guinea worm removed from the subjunctival space is reported as being probably the first case of its type.

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CALCUTTA, AUGUST 16, 1966

Quackery and Scientific Medicine

After an uneasy lull for a few years the question of quackery has come up again, but this time with a little difference. In India, perhaps as in any other country of the world, quackery is chronic, widespread, varied and deep-rooted. Since the dawn of the scientific age, it has remained a perpetual stigma to our society but never before was there any effort to give it a status it never deserved.

It is a matter of opinion how the people in general feel about it, but so far as the scientific medical fraternity of the country is concerned, it has expressed its categorical and unequivocal condemnation about the continuance of this menace. Without entering into the multifarious methods of operation of these quacks, we are mainly concerned with the group which dares to indulge in the practice of modern scientific medicine with all its dangerously potent armamentarium without any background of study, training or even vigilance of the science as such. The results are simply disastrous though always beyond the reach of scientific statistics, legal jurisdiction or moral obligation.

Quackery is a criminal offence under the Medical Council Act and anybody found guilty of this offence is supposed to face prosecution in the court of law. But to the astonishment of any law-loving citizen, it was reported that very recently a directive was issued by the Central Government to the Government of West Bengal urging them not to take any legal action against any of the quacks! Queries in this regard still remain to be clarified.

The Government propose to present a Bill in the Parliament which has already been drafted and discussed in a meeting called by the Ministry of Health and Family Planning. The Bill is supposed to tackle the problem of quackery in our country—but how, best known to the movers.

The Bill empowers the State Boards to enlist the unqualified and unregistered practitioners of modern scientific medicine of at least ten years' standing and 25 years of age. They should have a basic educational qualification not lower than the middle school standard with English as a compulsory subject. State Board is to give them a "number" which has to be quoted in the prescriptions written by them. The Bill further carries a list of drugs including almost every important drug of the day which will be prohibited for the 'enlisted practitioners' for use or prescription. Injections and blood transfusion are supposed to remain beyond their reach.

On careful scrutiny, the draft Bill seems to be ill-conceived, ill-advised and impossible to implement with all its implications. The Indian Medical Association through an expert committee has tried to analyse, assess and comprehend this problem in all its aspects. The report submitted by this committee adequately expresses the attitude of the profession towards quackery, explains the reasons of its ubiquity and perpetuation and refers to remedies recommended for its eradication. But this report was never heeded to by the Government. Of course it was nothing new experience for the Association. We still remember how the suggestion of the Association for the allotment of 15 per cent of the national budget on health was turned down with a cool and curt "no".

On analysis it becomes apparent that the Bill is intended to legalise the practice so long considered illegal by a Central Act. The Bill further contemplates even to allow people to toy with human lives who started this adventurous experiments on human guinea pigs since the (im)mature age of 15!

The apprehensions already expressed by the I.M.A. representatives in the draft committee meeting are just natural and inevitable. The 'enlistment number' once given is sure to be put at par with the 'registration number' of the qualified physicians by these unscrupulous practitioners and their credulous clientele. If the Government expect that this Act is going to be very devotedly abided by the persons for whom it was meant, it is simply a wishful thinking. Because those who could befool the Government by ignoring so many Acts for so long a time are surely not going to change overnight. So far as the enforcement of the Act by the Government is concerned, we have reason to be sceptic about it, as the utter failure of the Government to enforce the Drugs Act is too well known to be forgotten. The apprehension of Government's helpless yielding to pressures —political or otherwise to accept names even after the completion of the present listing seems to be grounded on adequate reason.

The idea of curbing the rights of these quacks to use medicines declared prohibited by the Act is just meaningless because of the fact that any practitioner of modern medicine is absolutely helpless without these vitally important drugs and measures. The inevitable result will be either flagrant violation of the law or somewhat intentional lingering of the 'peoples' suffering by withholding drugs unavoidably indicated for their ailments.

The ordeal of those unfortunate patients who for some reason or other are so placed in life that the Government could provide for them only these 'enlisted practitioners' with a 'list of drugs' always to be avoided, can well be visualised! Still they remained the free citizens of the country with equal rights and duties as of anybody else!

It is argued that these 600,000 quacks if debarred from practising by law will pose a big problem of unemployment. It is ridiculous to present any counterargument. It is still very fresh in the nation's memory how sympathetically this aspect was considered when the present Gold Order was passed into a law! We wish our Government was less sympathetic about any of the illegal professions prevalent in the country. It has been suggested since long that many of these unqualified persons can be trained and utilised as paramedical personnel, but in vain.

This naturally brings in the question of shortage of qualified medical men—too old a tune to harp on again. We look at it more as a matter of maldistribution rather than actual shortage. Thorough reorientation of the rural health scheme, enough incentives and adequate facilities for the rural medical officers are sure to go a long way in changing the painful picture of the present. The real remedy is certainly somewhere else and not in legalising quackery. This intended submissive compromise with quality for the sake of quantity will be positively detrimental to the cause of national health—a cause so dear to all of us.

If the Government are determined to get this Bill passed in consideration of factors other than the intrinsic merits of the issue, it will be done only at the peril of the national health of tomorrow.

We know that our Central Ministry of Health is headed by a physician of uncompromising national outlook with a background of traditional dedication to the absolute national wellbeing. It will indeed be an undesirable experience to witness such a person being instrumental in implementing such an unbecoming and retrograde step vitiating the sanctity of the domain of health.

We condemn quackery and any move to legalise it.

CURRENT MEDICAL LITERATURE

Functional and Structural Studies of Small Bowel in Ankylostomiasis

TANDON, B. N., DAS, B. C., SARAYA, A. K. AND DEO, M. G. (*Brit. Med. J.*, **1** : 714, 1966) from All India Institute of Medical Sciences, New Delhi, investigated intestinal changes in 22 patients with hookworm infestation by fat-balance and D-xylose-absorption tests and intestinal biopsy studies. Jejunal biopsy specimens were abnormal in half of the cases. Increased faecal-fat excretion was present in nine cases and D-xylose absorption was poor in three. These findings indicate that intestinal damage, with associated features of malabsorption syndrome, may be frequently encountered in persons with hookworm infestation.

Eighteen-Month Follow-up of Gastric Freezing in 173 Patients with Duodenal Ulcer

HITCHCOCK, C. R., RUIZ, E., SUTHERLAND, D. AND BITTER, J. E. (*J. Amer. Med. Ass.*, **195** : 71, 1966) from the University of Minnesota Medical School and Hennepin Country General Hospital, Minneapolis, performed gastric freezing for chronic duodenal-ulcer disease in 173 cases where an 18-month minimum follow-up was achieved. The overall study indicated that 92·5 per cent of the patients had symptoms or corrective surgery for recurrent disease at the time of the 18-month evaluation. Patients experienced relief from previously distressing symptoms immediately following gastric freezing but the secretion of hydrochloric acid quickly returned to prefreeze levels or higher. Some patients were deceptively asymptomatic at three months postfreeze although acid levels were again high. Gastric freezing was a dramatic episode in the life of a patient with chronic duodenal ulcer and it appeared to have a rather strong emotional appeal and to support subjective relief even in the absence of objective improvement.

Treatment of Tennis Elbow

ILFELD, F. W. AND FIELD, S. M. (*J. Amer. Med. Ass.*, **195** : 67, 1966) from the Cedars-Sinai Medical Centre, Los Angeles, expressed that a tennis elbow or humeral epicondylitis was a minor ailment, but to a tennis player, a golfer, a gardener, or a skier, it could be a threat to his way of life. The entity is therefore worthy of prevention and treatment. Further, they reported on the study of 174 patients with epicondylitis of the elbow, with special reference to the effective treatment by an elbow brace.

Rapid Biochemical Presumptive Test for Gonorrhoeal Urethritis in the Male

PEDERSEN, A. H. B. AND KELLY, R. E. (*Public Health Rep.*, **81** : 318, 1966) from Seattle-King County Health Department and San Diego Department of Public Health, San Diego, California, carried out an initial trial of a rapid biochemical test for the presumptive clinical diagnosis of gonorrhoeal urethritis in the male on 288 male patients attending the venereal disease clinics of San Diego, California, and Seattle, Washington. Both clinics reported a 78 per cent positive agreement between the biochemical and the standard bacteriological test. This result at present represents the degree of sensitivity of the biochemical test. It seems likely, however, that if patients had been selected on the basis of a more clinically obvious discharge, the sensitivity level would have been even higher than that obtained in the trial.

The specificity level of the test should be investigated in a population group other than that attending a public venereal disease clinic.

Present sensitivity levels justify further clinical investigation to assess the potential usefulness of this biochemical test in the epidemiologic control of gonorrhoea.

The Syndromes of the Third Neurone of the Cervical Sympathetic System

SHAFAR, J. (*Amer. J. Med.*, **40** : 97, 1966) from the Burnley and District group of hospitals, Lancashire, England, outlined the anatomic and physiological data relevant to disorders of the third neurone of the cervical sympathetic system. The exclusion from present considerations of such causal agents as neoplasm, trauma, aneurysm and the like permits of the separation of well defined clinical syndromes. Their recognition is of importance in prognosis and in avoidance of unnecessary and potentially dangerous investigative procedures. They are described and classified, and their pathogenesis is discussed. The classification is in three subdivisions : hyperfunction, hypofunction and deranged function, and is further arranged in accordance with involvement of the main trunk or one of its branches. Deranged activity is determined by the ingrowth of autonomic sprouts from adjacent autonomic nerve structures into the disrupted sympathetic channels. A more rigid definition of primary Raeder's syndrome is suggested. A further clinical entity is proposed, primary hemifacial hyperdrosis, representing overactivity of the sudorific fibres of the third neuronal facial division of undermined origin. An aetiological panel of oculosympathetic paralysis is presented.

Diabetic Capillary Angiopathy in Human Skeletal Muscles

BENCOSME, S. A., WEST, R. O., KERR, J. W. AND WILSON, D. L. (*Amer. J. Med.*, **40** : 67, 1966) from the Departments of Pathology, Medicine, and Surgery, Queen's University and the Kingston General Hospital, Kingston, Ontario, Canada, examined skeletal muscle biopsy specimens from diabetic and nondiabetic subjects by light and electron microscopy. Distinctive lesions in the capillaries were found in twelve of sixteen specimens from diabetic subjects but in only three of nineteen from nondiabetic subjects. The development of the concept of diabetic microangiopathy is rerviewed and discussed in relation to other vascular lesions complicating diabetes, and in relation to an abnormal response of the peripheral circulation to adrenalin infusion which has recently been described in human diabetes.

Survival After Resection of Bronchial Carcinomas

KUPER, S. W. A. AND BIGNALL, J. R. (*Lancet*, **1** : 10, 1966) from Institute of Cancer Research, Royal Marsden

Hospital, London, examined 4 ml. samples of blood from the pulmonary vein of patients having a resection for bronchial carcinoma for the presence of tumour cells. Of the 35 patients studied, 5 had tumour cells in the blood samples.

All 5 patients with positive samples died within 2 years of operation. Of the 30 with negative samples, 21 survived for 2 years.

4 of the 5 patients with positive samples also had lymph node metastases, which may have contributed to the poor survival. But of 9 patients with node metastases but negative blood samples, only 4 died, compared with all 4 of the patients with both node metastases and positive blood samples.

Tumour cells in the blood of patients with bronchial carcinoma appear to have prognostic significance.

Echocardiography: Clinical Application in Mitral Stenosis

Segal, B. L., Likoff, W. and Kingsley, B. (*J. Amer. Med. Ass.*, **195**: 161, 1966) from the Cardiology Section, Department of Medicine, Hahnemann Medical College and Hospital, Philadelphia, described an echocardiogram as the graphic registration of ultrasound waves reflected from the heart. The waveform recording from the anterior leaflet of the mitral valve is specific for this structure. The mitral valve echocardiogram in patients with solitary mitral stenosis correlates well with the findings obtained through cardiac catheterisation and with observations made during open-heart surgery. The motion of the anterior leaflet expressed as a diastolic slope in millimeters per second has been shown to decrease as the mitral valve area lessens. The echocardiogram, obtained without risk or serious technical difficulty, can be used in determining the severity of mitral stenosis. This bedside procedure may also be used to study the evolution of mitral stenosis from the onset of rheumatic activity and to appraise the motion of the leaflet after mitral valvotomy.

A Long-Term Study of Early Fluid Therapy in Severely Burned Adults

Bocanegra, M., Hinostroza, F., Kefalides, N. A., Markley, K. and Rosenthal, S. M. (*J. Amer. Med. Ass.*, **195**: 268, 1966) from the Hospital Loayza and Hospital Dos de Mayo, Lima, Peru, and the National Institute of Arthritis and Metabolic Diseases, Bethesda, studied in 308 severely burned adults the effect of fluid therapy on shock mortality and late moratality. Two fluid regimens were compared simultaneously on an alternate-case basis. The results showed (1) therapy with saline solutions alone was more effective than a fluid regimen deficient in electrolytes and (2) no additional advantage could be conclusively shown by combination of plasma with saline solutions. Furthermore, over a 14-year period there was only a 4 per cent overall shock mortality in a total of 152 patients treated with saline solutions alone. There were no shock deaths in 127 patients with 10 per cent to 50 per cent surface-area burns. Late mortality, on the other hand, was not influenced by the early fluid therapy employed.

Hypertension and Hyperuricaemia

Breckenridge, A. (*Lancet*, **1**: 14, 1966) from Department of Medicine, Postgraduate Medical School, London, found hyperuricaemia in 274 (58 per cent) of 470 patients under treatment for hypertension at Hammersmith Hospital. Of 333 hypertensive patients not on treatment, 90 (27 per cent) had a raised serum-uric-acid (S.U.A.). There was no tendency for hyperuricaemia to occur in patients with more severe hypertension. The incidence of cerebrovascular disease, ischaemic heart disease, and hypercholesterolaemia was significantly greater in those hypertensive patients who had a raised S.U.A. Measurement of glomerular filtration-rate by Co-labelled vitamin B clearance and uric-acid clearance studies have shown that the mechanism of the hyperuricaemia is a renal tubular abnormality of uric acid handling. This is supported by studies of miscible-uric-acid pool size and uric-acid turnover-rate.

Urinary-Tract Infection in Children

Lapides, J., Anderson, E. C. and Petrone, A. F. (*J. Amer. Med. Ass.*, **195**: 248, 1966) from the Section of Urology, Department of Surgery, University of Michigan Medical School, Ann Arbor, and Wayne County General Hospital, Eloise, Mich, commented that the majority of cases of urinary-tract infection was associated with structural or functional abnormalities of the genito-urinary system. Diagnosis of bacteriuria was best made by microscopic examination of the urine.

Appropriate treatment of a child with urinary-tract infection involves, first, complete urological examination, including pyelography, cystometry, urethral calibration, voiding cystourethrography, cystoscopy and urethroscopy; second, correction of any functional or structural abnormality present; and, finally, institution of an effective antibacterial regimen.

Control of Intractable Pain with Subarachnoid Alcohol Block

Kuzucu, E. Y., Derrick, W. S. and Wilber, S. A. (*J. Amer. Med. Ass.*, **195**: 541, 1966) from the Section of Anaesthesiology, University of Texas, M. D. Anderson Hospital and Tumour Institute, Houston, in a study of the effectiveness and possible complications of subarachnoid alcohol block for control of intractable pain in 322 patients with advanced malignant disease, found significant pain relief in 187 patients, and partial relief in 84. Administration of the block before narcotic addiction developed, improved the general condition of the patient by relieving the discomfort caused by the side effects of narcotics. The method was easily employed in debilitated patients who were poor risks for major neurosurgical procedures. Twenty-five complications occurred in 485 blocks performed in 322 patients, only two of 25 being permanent. When patients are selected carefully, and the block is performed with great caution, risk was minimal and long lasting relief of intractable pain was possible in the majority of terminal-cancer patients.

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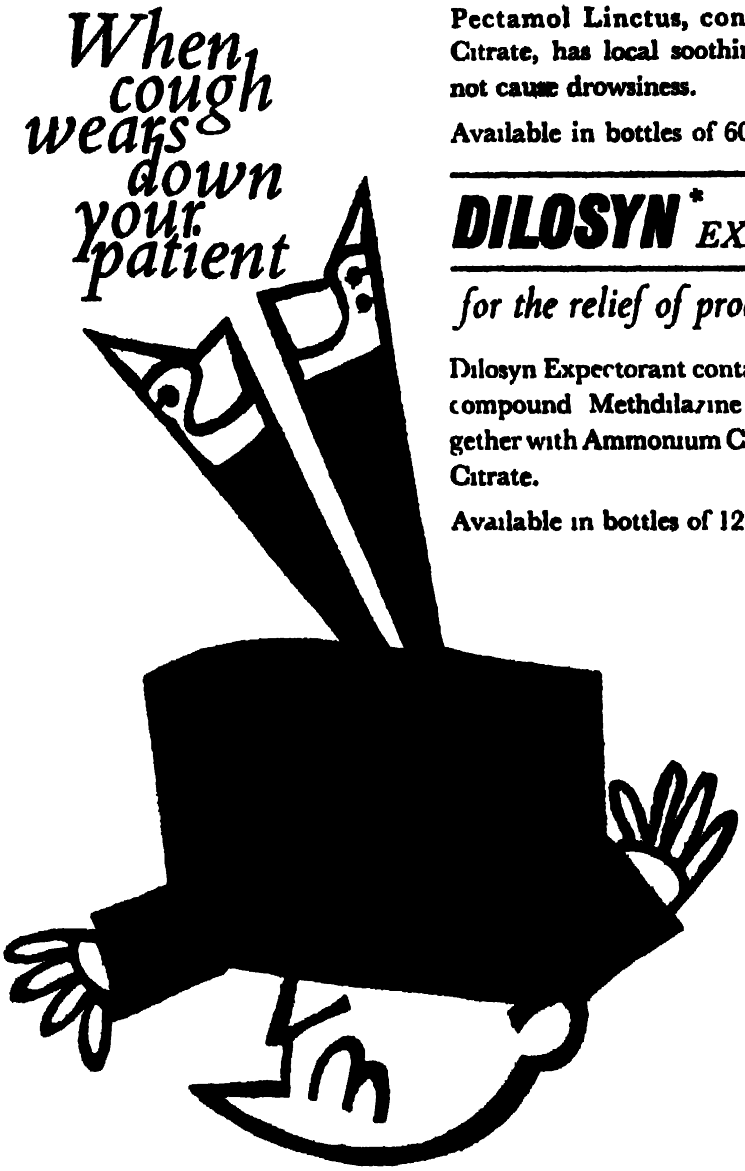
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CURRENT TOPIC

MEDICINE AND PHILOSOPHY*

R. N. COOPER, M.S. (LOND.), F.R.C.S. (ENG.)
Bombay

Socrates, the Greek philosopher, said, "By all means marry. If you get a good wife you will become very happy. If you get a bad one you will become a philosopher". Fortunately, I have got a good wife so I had no opportunity to become a philosopher and, therefore, I hesitated, as Dr. Ajgaonkar will testify, before I accepted your invitation to speak on this subject.

There are three stages in the career of a consultant. During the first stage he has to work hard to acquire practice. In the second stage, he is busy day and night to meet the demands of an extensive practice that has grown round him. In the third stage, when his practice begins to decline, he either turns sour or begins to philosophise. This paper is my first attempt in the realm of philosophy.

Having been in the profession for over forty-five years, I have had the good fortune to come into contact with a sizeable cross section of humanity. I have had opportunities to watch the behaviour of men of different nationalities at some critical moments of their lives when my services were requisitioned. I have treated princes and paupers, farmers and financiers, saints and sinners, ministers and mere men. I have had, therefore, many occasions to observe their reactions to illness and to speculate how far these reactions have been coloured by heredity, environment and the mental discipline to which they have subjected themselves. Thus I have been driven unconsciously into the realm of philosophy. But after this request from Dr. Ajgaonkar, I have been seriously thinking whether your time and mine will not be wasted in discussing medicine from a philosophic standpoint. I leave to you to be the judge. So long as we do not let philosophy cloud our medical judgment and so long as we do not indulge in fantastic speculations, I feel that a certain amount of philosophy is an essential part of our medical practice.

Philosophy forms a large component of our Ayurvedic system of medicine. I shall have occasion to refer to this subject again. There was a time in European history when medicine was closely related to natural philosophy. The results, medically, were far from satisfactory. Yet when we look at the question historically, we find that the relation of medicine to philosophy is pretty close. For years, it was argued whether medicine was a discipline of science or philosophy. Even to-day, we cannot get away from the idea. No doubt a major part of the medicine of to-day belongs to the realm of science. However, our concepts of health and disease, diagnosis and prognosis belong to the domain of philosophy. Looking back to the history of medicine we realise that philosophers at all times have exerted a dominating influence upon the moulding of theories concerning life and health. Thus Plato, Aristotle, Descartes, Charak, Susrut and others have helped to evolve medical theories or the philosophical doctrines of their own times. We are not merely endeavouring to bring back a sick man to health but we should consider it our duty to rehabilitate him into his accustomed place in his community and society. This calls for a knowledge of sociology and psychology. Even problems of metaphysics come our way. As doctors we see the Angel of Death visiting our patients ever so often. Besides, we see so much of misery and ill health. Thus many are the occasions when we do ask ourselves the meaning of pain, disease, suffering, life, death and the thereafter.

To begin at the beginning let us trace the concept of disease from the earliest times. One of the most primitive concepts of the nature of disease is that the sick person lacks some vital thing necessary for good health. This in later times developed into the humoral theory.

Another primitive concept was that something was added to the healthy body, some foreign entity such as demon or evil spirit or some strange substance introduced through black magic. Sometimes the ghost of a dead man was supposed to have taken possession of the sick person. Medicine probably had a triple origin —empirical, magical and religious. Empirical medicine was founded on experience and observation. This part has progressed and is progressing through the ages. The magical part has nearly died down. In our country, it is still prevalent. Even among the better educated people, the belief in the "Evil Eye" still persists. The religious part persisted in offering sacrifices to the god or goddess of healing. Thus in Greece it was to the temple of Aesculapius where the sick people flocked. The pilgrimage to Lourdes is still with us. The interest shown in Christian science by some of the elite is an evidence of the religious concept in medicine still persisting amongst us.

As already stated, in primitive medicine, it was held that either a subtraction from or an addition of something to the human body constituted disease. The addition or subtraction of something, disturbed the balanced forces of the body. The upsetting of this balance was the aetiological factor of any disease. A state of balance would be more easily upset in fluids than in solids. Hence arose the humoral theory of Hippocratic medicine. There were four humors in the body—blood, phlegm, yellow bile and black bile. The heart was supposed to be the source of blood, the brain of phlegm, the liver of yellow bile and the spleen of black bile. When the four humors are perfecty balanced there is good heath. If the balance is upset there is disease. This humoral pathology, or shall we say the philosophy of health, began five centures before Christ. It was so strongly supported by Galen that this humoral theory or philosophy persisted for two thousand years. It was not till the Renaissance that a new society of highly enlightened men first arose in Italy and had the courage to challenge the authority of Hippocrates and Galen.

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* Address delivered at XI Bombay Territorial Medical Conference held under the auspices of the I.M.A. Bombay Territorial Branch on 3-4-66.

Vesalius did this, so far as galenic anatomy was concerned in the sixteenth century. Paracelsus began to undermine the four humor theory, and in his introductory lecture burned the books of Hippocrates, Galen and others; and exhorted the student not to look upon the masters as infallible gods but to learn to build up their knowledge on observation and experience. In physiology Harvey exploded Galen.

The great physical and chemical discoveries of the seventeenth century began to infiltrate medicine. Now diseases were no more the upset of the balance of hypothetical humors. Diseases were attributed to physical forces and chemical changes which could be reproduced experimentally in the laboratories. However, this new school made the same mistake as their predecessors had done, in respect of the humoral theory. It tried to explain all phenomena of life and disease in terms of one principle, e.g., oxygen. electricity or irritability.

Thomas Sydenham (1624-1689), the great English physician theorised that disease is the battle between nature and the constitution of man against injury. The physician must learn to aid nature in this fight. But first of all he must know the disease, by observing the symptoms and the clinical course of each disease. His teaching had a lasting effect on the study of diseases. Excellent monographs on tuberculosis, apoplexy, rickets and certain heart conditions were published during these years.

Modern pathology may be said to have begun with Morgagni (1682-1771). Morgagni was an anatomist in the Padua University and he published 'five books on the seat and causes of disease based on anatomical research'.

Morgagni describes the disease and its symptoms as they are observed in life and tries to co-relate these with the anatomical changes he observed in the different organs during autopsy.

Vesalius, Harvey and Morgagni all worked in Padua and, therefore, the honour of breaking away from traditions and paving the way for modern medicine must be given to Italy.

I have very briefly sketched the evolution of modern medicine to show how the philosophical part of medicine receded to the background and how the scientific part came to the forefront. Before I proceed to consider the further developments that have taken place in the last thirty years, I shall pause to take up the consideration of Ayurvedic medicine.

At the outset I must state that I have great veneration for the past. Each successive generation has contributed its mite towards our modern civilisation. Ours is an evolving world. Time cannot stand still. Time in its march always brings changes. Galileo and Newton introduced revolutionary changes in astronomy and physics. What they said was not the last word. New knowledge is being acquired and added to both astronomy and physics almost every day and almost a new world has opened out before us. We have seen how the Hippocratic medicine stood still for nearly two thousand years and how Vesalius, Harvey and Morgagni changed our concepts and gave, as it were, a new look to medicine. New discoveries, new techniques, new diagnostic aids have helped to so expand our knowledge of medicine that it is impossible for one man to be thoroughly acquainted with all the different disciplines of medicine. We have reached a stage when we cannot do without specialists.

Ayurveda (Science of Life) is a splendid system of philosophy having a certain amount of science incorporated in it. It forms our proud and glorious heritage. According to Kaviraj D. N. Ray in his masterly book "The principles of Tridosha in Ayurveda", medical knowledge has been handed down to us from 6th and 7th century B.C. by Agnibesa, Bhela and Susruta I. Charaka and Susruta II flourished in the 1st century A.D. This was the golden age of Ayurveda. Now darkness came over the land. Adoration for the great masters hampered progress. The teacher imparted his knowledge by recitation of couplets. What was expressed in the couplets was the last word. There was no scope for reason or doubt. Thus to-day, Ayurveda is an enormous lake of knowledge into which weeds have been allowed to persist. The weeds will have to be removed, if we wish to see the clear water again. So far as science is concerned, there is only one science for the world. There can be only one science of astronomy or physics or chemistry for the whole world and so there can be one science of medicine for the East and the West. There is no such thing as the medical science of Russia or America or Japan. But I must admit that there can be different systems of philosophy for each country. There is room for more than one philosophy in a country. India has many systems of philosophy. These systems satisfy our spiritual needs. Let us preserve Ayurveda as a philosophy, but let us divest it of its scientific part.

For instance, the anatomy in Ayurveda is faulty and, therefore, it would be sheer obstinacy to teach such anatomy. Kaviraj Ray admits that Ayurvedic anatomy is faulty. But he questions, if the knowledge of physiology is quite essential for an ayurvedic student. He says that the physiology of western medicine is quite different from that of Hindu Medicine. The physiology of Ayurvedic medicine is the physiology of Vayu, Pitta and Kapha. I understand that physiology is a science and as such there can be only one common physiology for all countries.

As an example of physiology in Ayurveda, let us take digestion. Agni (fire) is necessary for digestion, particularly Jatharagni, the digestive fire, found in the abdomen. Chakrapani who lived about 1060 A.D. states that Jatharagni first breaks up the compactness of food into simpler substances. Subsequently, these simpler substances are acted upon by Bhūtāgnis. Susruta raises a question "Is there any Agni in the body other than Pitta, or is Pitta itself Agni?" He himself answers the question "We do not perceive any Agni other than Pitta". Further, Charaka and Susruta are not agreed upon the place where food is digested. Charaka says both the stomach and duodenum are the seats of digestion. Susruta says that the stomach is the seat. How exactly the Agni in Pitta helps digestion is not clearly explained. Pachaka Pitta is stimulated into action by Samana Vayu which has its special seat in the umbili-

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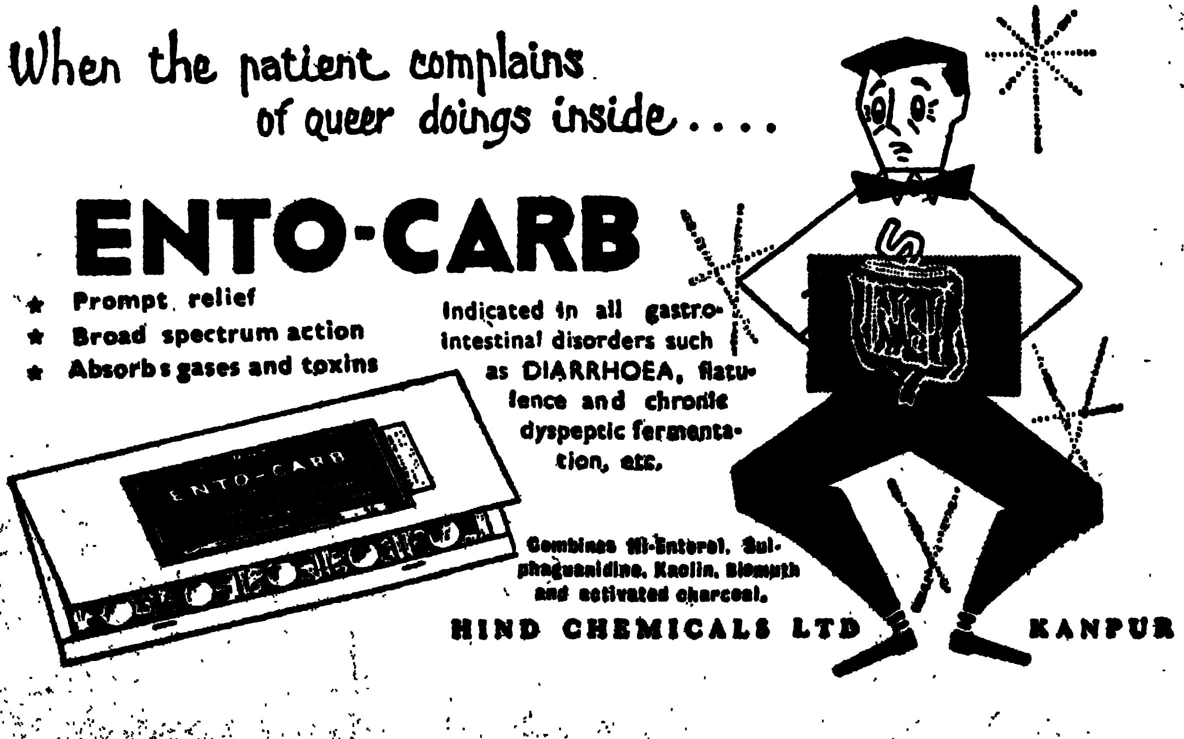

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cal region. Further, Samana Vayu separates from the digested products parts that are essential for the body from the waste products which are pushed down by this Vayu into the large intestine. The author (Dr. Thakur) from whose book I have quoted this passage concludes "Here again we find that Ayurvedists were conversant with the digestive juices".

How very different is this concept of digestion from our ideas of digestion. Modern physiology accounts step by step for the digestion of diverse food stuffs. Each step is proved scientifically. Why persist in teaching such imaginary physiology?

Tridosha theory is the essence of Ayurvedic pathology and treatment. This theory is too complicated to be argued in the time allotted to me.

"The Ayurvedists attribute physical disorders to an imbalance of Tridoshas, viz., Vayu, Pitta and Kapha, and mental disorders to an imbalance of Sathva, Rajas and Tamas. The three Doshas are the most important from the standpoint of derangement of health While considering pathology not only must the three Doshas be considered but also the seven Dhatus or body constituents and also three males or waste products—urine, faeces and sweat.

The words Vata, Pitta and Kapha are not to be translated as wind, bile and phlegm. The four humors of Hippocrates could not explain all the diseases. But the physician philosophers of India solved the problem by providing for five Vatas, five Pittas and five Kaphas.

Now it can be percieved that to explain any phenomenon in the body you have hundreds of possible permutations and combinations from the five Vayus, five Pittas and five Kaphas. If you cannot explain a disease by the decrease in quanity of one Vata, you may say that one Pitta is affected either on the minus side or the plus side. If necessary, you bring another Vayu or wind to your aid. It almost reminds me of the story of a junior naval officer being examined by the captain of the ship. The captain asked, "What will you do if a strong wind rises and the waves ride high?" "I shall drop the anchor", replied the examinee. "Right" said the captain, "and if the wind rises still higher what will you do?" "I shall drop another anchor", came the reply. The captain asked further "If the wind still blows stronger what will you do?" "I shall drop another anchor", replied the junior officer. The captain could contain himself no longer and roared "Where the Deuce do you get these anchors from?" The poor chap replied, "Where do you get all the wind from, Sir?" I have tried to understand the Tridosha Theory from books of Kaviraj Ray and Dr. Chandrashekhar Thakur, but I felt that I came out of the same door that I went in. It took two thousand years to explode the four humoral theory of Hippocrates. I do not know how many more years we shall have to wait, to see more of science enter into Ayurveda, and for the speculative theory to recede into the background. But the supporters of pure Ayurveda refuse to admit that the microscope and the various laboratory tests are of any help in the diagnosis and treatment of diseases by the Ayurvedic system of medicine.

Ayurvedists take up the attitude that whatever is known in medicine to-day and will be known tomorrow is all contained within the Ayurvedic system of medicine. Such an attitude is hardly scientific. I should like to have occular proof of Vata or Vayu. So also for Pitta and Kapha, I should like to see these subsistences made manifest. I should like to know how the physical properties ascribed to these constituents have been arrived at. I should like to know what is the chemical composition of Pitta and Kapha? Can these substances be isolated from the tissues in which they are said to orginate? I will not be ready to accept the statement that the normal quantity of Pitta is four anjalies and of Kapha is six anjalies, unless I am shown how the calculation is arrived at. The supporters of Suddha Ayurveda maintain that Ayurveda needs no face lifting. They are definitely against any integration of the two systems of medicine. If I talk the way I do, I will be promptly told that I know neither a word of Ayurveda nor a word of Sanskrit and I have, therefore, no right to talk on this subject. But our political leaders who know neither a word of Ayurveda nor modern medicine are permitted to talk glibly about integration. It is my considered opinion that an integration is not possible. Leaving the Ayurvedists in their self contented position, let us consider how science marches on, taking medical science with it. But as we march on we shall feel an increasing need of a little more philosophy in our practice.

We realise that to understand the physiology of the human being we must understand that anatomy and physiology of the cells composing our body. In these investigations the electron microscope has become a most promising tool. A common staphylococcus which is like a small dot under an ordinary microscope can be enlarged to a size when it measures six inches across. This immense magnifying power of the electron microscope provides an insight into the world of macromolecules. But the study of this type requires a group of workers who are specialists in various neighbouring disciplines of medicine such as colloidal chemistry, biology, etc. Such a group succeeds in achieving results that an individual would never have obtained working on his own. Science to-day tries to bring to light the chemical composition of the nucleus of the sexual cell, of its chromosomes and of the genes that form part of the chromosomes. This study of genes is important because the genes carry the hereditary factor which is so vital for the future of the human race. We are at present involved in a detailed study of different tissues and organs of the human body. But we want to know man, the real man. Is man merely a compound of chemical substances which constitute the tissues and the humors and ferments? Or is he something much more complicated as he is endowed with consciousness and intellectual powers? These intellectual powers produce a musician, a poet, a mathematician, a hero or a saint. Every person has his individuality. What is it that constitutes individuality? We should like medical and allied sciences to answer this question. We should like to know more of the mystery of our existence, of physical and moral suffering and of the craving to know more of the great design that lies behind the creation of the universe.

With the advent of industrialisation a change has come over our methods of living and thinking. We have to live in ever increasing numbers in the big cities with their very tall and closely crowded buildings and their smoky and sooty atmosphere. You hardly ever see a clear starry night. For a very long time I have not seen my favourite constellations of stars like the Orion or the Great Bear. Every one is busy rushing about to make money and then use it to go to cinemas or clubs or restaurants so that the family reunion in the evening is becoming less noticeable. Improved sanitation and hygiene and increased surgical skill in curing congenital and acquired heart diseases and other disabilities have led to an increased expectancy of life. This has created a new problem. The number of C class citizens and jobless old men and women has increased. To maintain these people in a good condition has increased the financial burden on society. Health conditions have improved and to-day the children are handsomer, taller and stronger than children about three decades ago. But the question is whether increased stature really means increased intelligence.

With labour-saving devices and with the advent of air-conditioning in houses, offices and even workshops is it not possible that we are likely to become less hardy and therefore lose our natural powers of resistance? Mortality from infectious diseases has fallen and we live longer to suffer from degenerative diseases like cancer, diabetes, arteriosclerosis, coronary thrombosis and nervous diseases. Our diminished resistance to stand up to worries has led to an increase of patients with neurosis. So, to-day a new speciality of psychiatry has appeared and according to reports it is reaping a very good harvest.

To-day, we need specialists but great harm can come by over-specialisation among physicians. Modern medicine breaks up the sick man into fragments. Each fragment is to be treated by a specialist. A specialist may study the minutest part of his speciality. However, his knowledge of the body or the patient as a whole may be so elementary that he may not be in a position to understand the implications of his own speciality. This is where a general practitioner well versed in medicine can help the specialist to treat the patient. As we specialise more and more and "study more and more of less and less" we find that the deep compartmental knowledge gained by our specialists must be integrated in an intelligible manner by medical men with superb intellect. They will then apply the treatment to the patient. Thus I see that in some near future a difficult case will be worked upon by specialists of a hospital who will meet together to discuss their different viewpoints. This conference will be presided over by a senior and highly intellectual physician who will put the data to practical use in the treatment of the case in question.

So far as I can see, what medicine has to face in the near future is, whether medicine can help in the remaking of man, a man with increased natural physical health as also mental health and a well developed moral sense. This is a gigantic problem that will require the joint efforts of medical men, educationists, biologists and economists. I feel that the dark cloud of politics which hangs over the firmament of medicine must be lifted for all time to come.

Nearly three hundred years ago, Descartes, a philosopher, clearly pointed out the role that medicine will have to pay for the uplift of man. Descartes in his book "Discourse on method" wrote "The mind so strongly depends on temperament and the disposition of bodily organs, that if it is possible to find some means which will make men generally more wise and more clever than they have been till now, I believe that it is in medicine that we shoud seek it". It is true that the medicine now practised contains few things having so remarkable usefulness. But without any intention of scorning it, I am confident that there is no one, even among those whose profession it is, who does not admit that everything already known about, is almost nothing, in comparison with what remains to be learnt, and that people can be spared an infinity of diseases both bodily and mental, and perhaps even the weakening of old age, if the causes of those troubles and all remedies which nature has provided us were sufficiently well-known. Alexis Carrel in his book "Man the Unknown" says that "we will have to be reoriented in our studies, if we are to undertake this gigantic task of remaking man." He writes, "This superscience will be utilisable only, if, in stead of being buried in libraries it animates our intelligence. But is it possible for a single brain to assimilate such a gigantic amount of knowledge? Can any individual master anatomy, physiology, biological chemistry, psychology, metaphysics, pathology, medicine and also have a thorough acquaintance with genetics, nutrition, development, pedagogy, aesthetics, morals, religion, sociology and economics? It seems that such an accomplishment is not impossible. In about twenty-five years of uninterrupted study one could learn these sciences. At the ages of fifty those who have submitted themselves to this discipline could effectively direct the construction of the human being and of a civilisation based on his true nature..."

Sufficient unto the day is the philosophy thereof. Before I conclude, I may say that a wit has said that "Philosophers are people who talk about something they do not understand and make you think it is your own fault if you have not understood them." So, if you have not understood me, it is your own fault!

NOTES AND NEWS

Health Education as a Mass Movement

Inaugurating the fifth Health Education Conference recently at Bangalore, the Union Minister of Health and Family Planning appealed to the States to establish State Health Education Bureaus and also to strengthen them, so that they could meet educational needs and requirements of the State and national health programmes.

Describing the job and field oriented inservice training programme for the health extension educators, which had been developed by the Central Health Education Bureau, as a sound and effective method of providing learning and experience, the Minister said that this methodology should be adopted for all inservice training programmes organised in the country. The Government had now started a diploma course in health education at the All-India Institute of Hygiene and Public Health at Calcutta and similar courses would be run at other places.

Pointing out the need to develop health education as a mass movement in the country it was said that the movement must aim at influencing village and urban leadership and organisations at various levels. At the block-level, for instance, emphasis must be placed on securing the support and active participation of the Panchayat committees, village panchayats, mahila samitis, etc., while at the state and district levels, attempts must be made to enlist the support of professional bodies like the Indian Medical Association, teachers' and engineering associations, labour unions, etc. The Government were making provision in the Fourth Plan budget to help the States to train all the peripheral workers in health education by the end of the Fourth Plan.

Dr. Lippes Submits Report on Population Control

India should bring about a revolution in birth control in less than 10 years, Dr. Jack Lippes, American inventor of the loop, has suggested in his report to the Government on completion of his tour of India.

Dr. Lippes has recommended that in the next two years, birth control should be so geared that the target for loop insertions from 1968 onwards should reach 10 million annually. That can effect a real drop in birth rate and increase the per capita income by 1969.

In his report, Dr. Lippes says "the first pre-requisite in providing a service is to make loops readily available within a year. The IUCD should be a routine procedure in all hospitals, dispensaries and health centres throughout India. The second requirement is that more persons should know about this service and of what value it is to them".

He has suggested exhibition of films on various aspects of family planning. In another suggestion he has stressed the need for more health educators. He has expressed the view that the existing health educators should concentrate on selected areas to spread family planning. He has recommended establishment of independent evaluation cells in each State for family planning programme. The cells should be used to encourage family planning workers with imaginative, constructive guidance, and not to act as policemen or supervisors.

Praising the work of training institutions for various medical and non-medical workers in family planning at Calcutta, New Delhi and Bombay, Dr. Lippes has recommended that one or two such institutions should be set up in the South.

Dr. Lippes has recommended a study on the incidence of abortion in India. He has estimated that about 180,000 mothers die every year from effects of induced abortion. Observing that the problem should be tackl on warfooting he has added, "The way to fight it effective family planning and liberalisation of the abortion law."

The Government, says Dr. Lippes, should start old-age pension scheme in order to decrease parenta dependency on children. Dr. Lippes believes this woul go a long way to make the idea of small family more acceptable to the people than a whole array of legislative devices to promote family planning.

He has also suggested that family planning training centres should treat both infertile and over-fertile cases. This would put the family planning centres on a more positive basis.

Union Ministry Warns against Cholera

The Union Health Ministry has asked the State Governments to take timely measures against cholera in view of the El tor threat.

Instructions have also been given to various medical authorities to treat even cases of gastro-enteritis as suspected cases of cholera.

In 1963 there were 56,988 cholera seizures and 20,309 deaths, 56,436 seizures and 19,836 deaths the next year and 42,664 seizures and 12,638 deaths in 1965.

129 Encephalitis Deaths in Nagpur

Encephalitis took a toll of 129 lives in Nagpur city during May and June this year, according to figures published by the Municipal Corporation. The figures show that there had been 131 cases of attack during this period.

The press release by the Corporation said that the disease which claimed 112 victims in May and June last year was found to occur predominantly in the thickly populated areas of the city. Last year, only children up to the age of five had been the victims. But this year, the occurrence was more in the age-group of five to ten. The Corporation, the press release said, moved the State Government and the Indian Council of Medical Research to undertake research work on this "Mystery Disease."

District Hospitals to Have Psychiatric Units

The Union Government has decided to attach psychiatric units, consisting of outpatient child-guidance clinics and day hospitals and small psychiatric wards, to district hospitals or primary health centres.

This programme, which forms the basis of the mental health schemes proposed for the Fourth Plan, was advocated by the Mental Health Advisory Committee.

The Central Health Council has urged the State Governments to make a beginning on these lines, wherever adequate trained personnel and other facilities can be made available during the financial year 1967-68.

As one of the means of improving existing mental hospitals, the Central Council has suggested the separation of chronic and acute cases in these hospitals and the provision of occupational therapy for both groups. The Union Ministry of Health will shortly examine the question of subsidising the free distribution of drugs to these patients on the pattern established with regard to supply of drugs for tuberculosis patients.

It has been urged that particular stress should be laid on providing adequate facilities for dealing with emotional problems of children and adolescents and acute emotional disorders.

With a view to stimulating mental health consciousness in the next generation of doctors and to fashion a most effective tool for prevention and early detection of mental illness, the Central Council of Health has recommended that undergraduate teaching in psychiatry in the medical colleges should be strengthened and given the recognition and importance which it deserves by the Medical Council of India.

New Polio Vaccine Unit at Pasteur Institute Coonoor

A polio vaccine unit was recently inaugurated at the Pasteur Institute, Coonoor, by Dr. Sushila Nayar, Union Minister for Health and Family Planning. Mr. M. Bhaktavatsalam, Chief Minister, Madras, presided over the function. On behalf of the Institute Association, Dr. S. R. Pandit welcomed the guests.

In her inaugural address Dr. Nayar stressed the importance of preventive medicine and commended the excellent work done by Dr. N. Veeraraghavan, Director of the Institute and Dr. Balasubramaniam and his team in charge of the polio unit.

Explaining the Government's refusal to comply with the requests from doctors for the supply of the vaccine the Minister said that the vaccine should be administered systematically under controlled conditions. Otherwise the vaccine, which was usually excreted by the patients, would cause further infection.

Dr. Veeraraghavan, in his report said that the Institute was internationally recognised for its research work on rabies. It was the main laboratory for work in influenza and other respiratory viruses in India. It was now serving as an important centre for research on intestinal viruses, vaccinia and smallpox. Studies were also in progress on cholera, syphilis, diphtheria and enteric fevers. In addition to collaborating with Central and State Governments and international organisations the Institute had been recognised by the Universities for advanced training in virology. The Institute now supplied 80,000 antirabies courses annually.

Dr. Veeraraghavan said the polio unit was now a reality thanks to the keen interest evinced by the late Prime Minister, Mr. Jawaharlal Nehru. The Health Ministry had given a capital grant of Rs. 16 lakhs for the building and a recurring grant of Rs. 5¼ lakhs. He gratefully acknowledged the assistance given by the Government, the U.S. Aid Mission and the World Health Organisation. He added that epidemiological studies carried out by the Institute indicated that most of our children above seven years of age had infection and developed immunity against polio. Based on this finding, it was proposed to immunise only children below seven years. There were about 50 million children in India in this age group and about 100 million doses of vaccine would be required if each child were to receive two doses. He said that the first batch of vaccine would be ready for release by April, 1967.

Fingerprinting to Identify Culprit Germs

According to New York Times News Service, after a two-year study of bacteria Dr. Martin Alexander, a microbiologist at the Cornell University, and John R. Gould, a chemist of the General Electric Company, have reported that they had evolved a new technique to fingerprint germs. They had found that the pattern of metabolic breakdown of each of 32 pure strains of germs was distinctive enough to provide a basis for ready identification by standard laboratory instruments.

A germ's telltale metabolic 'signature', the scientists said, could be detected from minute samples and in far less time than it takes with the present methods of growing bacteria cultures from clinic specimens.

To test their concept, the scientists grew known bacteria samples and then extracted the metabolic products. They primarily used nondisease-producing bacteria, including strains, common in human intestines.

A standard gas-liquid chromatography device, used to analyse components of a chemical mixture, separated and analysed the metabolic product of each germ. Each product of a germ's metabolism, in combination with an inert carrier gas, required a different and predictable time to pass through the device. These passages were marked and timed by censoring attachments, and recorded on a graph.

The germ's fingerprint was determined by assigning a letter to each distinguishable component of its metabolism and listing them in order of decreasing quantity. In all 32 strains studied, the 'fingerprints' were distinctive by variations in quantities of the same components and by their presence or absence.

Such a germ-identifying technique, especially if in further experiments it proves to be effective in mixed strains anl the many other pure strains, it could lead to faster diagnosis of disease, assist in the search for life on other planets and provide an early warning system for water and air pollution or even for an attack of germ warfare.

Hopeful Signs in the Treatment of Leukaemia

At the recent *Entretiens de Bichat* in Paris, Professors Jean Bernard and Georges Mathe reported 14 cases of acute leukaemia with remissions of up to eight years using the classical combination of steroids and antimitotic drugs.

The authors do not claim there is anything new in this as there are roughly a hundred cases in the world literature, some of which have had remissions for as long as 12 or 14 years, but they claim that the increasing number of cases which are now being reported does show a significant trend.

There would appear to be greater hope now for patients with chronic myeloid leukaemia since the introduction of a Hungarian drug "Myelobromol" which has been on trial for the last four years in Professor Mathé's unit at the Villejuif Cancer Hospital.

The drug is chemically very simple as it is derived from mannitol by replacement of hydroxyl groups at each end of the molecule by an atom of bromine. It has a specific effect on the myeloid series and early results are promising.—*Medical News.*

Special Cardiovascular Units Save Many Lives

The World Health Organisation in Geneva has strongly recommended the organisation of cardiac emergency services in its member countries estimating that in a European country of five to ten million people up to 2,000 lives can be saved every year.

"Such services are already saving many lives at small cost and without detriment to the care of other patients," a group of experts stated in a report published in the *WHO Chronicle.*

The U.S.S.R. was the first in Europe, "if not in the world" to organise such services on a community basis, according to the report. Large cities there are divided into zones of roughly one million people, each allocated a special cardiovascular hospital unit.

When a person has an attack, the service dispatches a doctor and vehicle. If the diagnosis is a cardiac emergency the doctor calls the zone cardiac unit and treats the patient until he is removed to hospital.

The "specialised" ambulance has a doctor and a medical auxiliary who continue treatment in transit. It is equipped with laboratory apparatus for leucocyte counts and measuring coagulation time, prothrombin time and erythrocyte sedimentation rate, as well as electrocardiograph, oxygen, surgical instruments for internal massage and defibrillators.

But the WHO report pointed out that not every service would have such elaborate equipment. Minimally, it recommended oxygen apparatus, two orderlies trained in resuscitation methods (same for driver) and radio contact to the hospital. This basic setup, it noted, would be "extremely valuable" for road accidents and other types of emergencies, too. The report warned that the reception period at the hospital could be dangerous, since psychological stresses might build up if a person were left alone or with an amateur. In one study of cardiac arrest, 22 of 171 cases occurred on stretcher, in the corridor or in the reception room. The WHO report also discussed the training of staff in resuscitation methods. It suggested that conditions should be "realistic". But teaching dolls could be made available permitting the simultaneous practice by two persons of mouth to mouth artificial respiration and closed chest massage until the actions became "instinctive". The report suggested that the specialised team should consist of a resident cardiologist as team leader; anaesthetist; physician or senior nurse for intravenous therapy; one or two people to continue massage; and a surgeon for indicated thoracotomy.—*Medical News.*

D.T.M.&H. and L.T.M.&H. Courses, 1966, at School of Tropical Medicine, Calcutta

The nine months' course of instruction for the (1) D.T.M.&H. (Diploma in Tropical Medicine and Hygiene) under Calcutta University and (2) L.T.M.&H. (Licentiate in Tropical Medicine and Hygiene) under the Faculty of Tropical Medicine, West Bengal, will begin from the 15th October, 1966. The D.T.M.&H. course is open to medical graduates of Indian universities or candidates possessing equivalent qualifications recognised by the Calcutta University for this purpose, who have been engaged in medical practice for a continuous period of at least 15 months or held residential appointment in a teaching hospital for at least one year. The L.T.M.&H. course is open to the medical licentiates registered in any State Medical Council of India but medical graduates may also be admitted, if they desire. Applications for admission in the prescribed form (obtainable from the School Office) should reach the Director, School of Tropical Medicine, Calcutta by the 31st August, 1966.

Earl of Minto Gold Medal for Medical Research

Minto Gold Medal for the year 1965 has been awarded to Prof. J. B. Chatterjea, Head of the Department of Haematology and Director, School of Tropical Medicine, Calcutta, for his outstanding contributions to medical sciences.

AIMO Resents Report on Drug Industry

The All-India Manufacturers Organisation has issued a statement expressing its resentment over the reported comment on the drug industry by the committee on Drug Control Administration. Referring to the accusation of the Committee against small units of utter disregard of even the elementary precautions to ensure the safety of the products manufactured by them the AIMO statement says that there may be a few 'black sheep' but taking the industry as a whole, the remarks are 'uncalled for'.

Pointing out that one of the demands of the industry, namely, that the Drugs Act and Rules be administered uniformly throughout the country has not been fulfilled so far, the AIMO statement asks "what useful purpose such a report would serve except to damn the industry while suggestions and recommendations remain unimplemented for years?"

The statement claims that "the plight of the manufacturers who abided scrupulously by all the requirements of law and ethics have been made miserable by the plethora of amendments to the Drugs Act, price controls, meagre allocation of raw material, etc.".

The statement suggests that the committee instead of generalising on what might be true in a few cases should have recommended concrete methods to help the industry.

REVIEW

Gallstones (Causes and Treatment) —By A. J. Harding Rains, M.S., F.R.C.S., 1964. William Heinemann Medical Books Ltd., London; 21·5 cm.×13·5 cm., pp. 188, 40 s. net.

The author wants "to restate what was and is now known about gallstone disease" for according to him "books about the cause of gallstones seem to belong to a bygone era of 40-50 years ago .....and are forgotten".

He begins with an historical review up to 1800 A.D. Throughout the chapters there is an endeavour to trace from early times the evolution of the present conception. This is stimulating and educative.

The book is divided into two parts. The first deals with causes—with what is known about the formation of gallstones; the second with the effects of the disease and the policy of treatment. Both have been satisfactorily treated.

Presence of vague upper abdominal pain and the accidental discovery of gallstones and their relation, if any, have been discussed. "Dissolving gallstones" has found a place in the last chapter.

Gallstone disease is on the increase. It should be a useful book.

The price is rather high.

SUBODH DATTA

OBITUARIES

Dr. Jivrajbhai A. Dhruva

Born in the year 1903 Dr. Jivrajbhai A. Dhruva qualified for the M.B.B.S. degree from the Grant Medical College, Bombay, in 1930. After practising in Bombay for two years he joined a charitable dispensary at Kutchh in Gujarat. He spent 14 long years in rendering humanitarian service through this dispensary. From Kutchh, he came over to Surendranagar and joined the local Chhotalal Jamnadas Sarvajanik Dispensary as Medical Officer. He served the institution for 20 years. Such was his popularity with local people that the dispensary came to be referred by many as Jivrajbhai's Dispensary. His tenacity, enthusiasm and tireless efforts ultimately succeeded in converting the dispensary into a big hospital. Dr. Jivrajbhai started private practice in the closing years of his life and with a failing health. Notwithstanding the handicaps he established himself in practice in a short time.

DR. JIVRAJBHAI A. DHRUVA

A founder-member of the Surendranagar-Wadhwan Branch, I.M.A., he took keen interest in all its activities and also in all matters vitally concerning the medical profession.

Though a busy medical man, Dr. Jivrajbhai took active part in socio-political activities. He was a member of the Praja Socialist Party, Vice-President of the local branch of the Indo-Soviet Cultural Society and a member of the Surendranagar Joint Municipality.

He passed away at Bombay on 10-5-66 following a brief illness. He is survived by his wife, three sons, five daughters and numerous admirers.

Dr. S. C. Das

Dr. S. C. Das was born at Metiahuruz, Calcutta in the year 1908. He passed his matriculation examination from the C. M. School (now St. Barnabas) at Kidderpore. Then he joined the then Presidency Medical School (later National Medical School) and qualified for the L.M.F. diploma. He started practice at Metiaburuz. Later he served as an A.M.O. under the B.B.J. Co., Calcutta and was posted at Sindri, Bihar.

Dr. Das was an enthusiastic member of the Garden Reach Branch of the I.M.A. In recent years he was keeping an indifferent health. He was taken ill in January this year and was admitted in the S.S.K.M. Hospital, Calcutta, where he expired on 6-2-66-

Dr. Das leaves behind his wife, his only son and a host of friends and relatives to mourn his loss.

Dr. Kshirode Chandra Pal

Dr. Kshirode Chandra Pal, founder-member of the Baripada Branch of the I.M.A. passed away on 21-2-66 at his residence at Baripada in the Mayurbhanj district of Orissa.

After qualifying for the profession, Dr. Pal joined as Assistant Surgeon in the service of the then princely State of Mayurbhanj. Following the merger of the State in the present Orissa State, he was absorbed in the Orissa Medical Service and was placed in charge of the laboratory of the District Hospital, Mayurbhanj. On retirment he set up private practice.

Dr. Pal, who was associated with the Baripada Branch since its inception, served for many years as its Secretary and took keen interest in all its activities.

He is survived by two sons and a daughter, his wife having predeceased him.

Dr. Parma Nand Misra

Dr. Parma Nand Misra was born in 1887 at Muhammadi in Lakhimpur-Kheri District, U.P. He recieved his elementary and high school education at Hardoi. After passing the S.L.C. examination he joined the military wing of the Agra Medical School. He passed the final examination in medicine from this school with distinction and joined the army medical service. While in service he took part in several military expeditions including those to Nepal and Afganistan. During the years 1914-18 he was assigned duties in several theatres of war including France, Mesopotamia, Syria and other Arab countries. In recognition of his devoted service and gallantry he was awarded medals and 'jagirs' by the then British Government.

DR. PARMA NAND MISRA

On his retirement from military service he set up a big practice at Kanpur. Believing as he did in the message of work, he worked hard till his last days in serving the medical profession.

He was one of the founder-members of the I.M.A., Kanpur Branch.

Dr. Misra passed away on 14-4-66 following a brief illness. He is survived by two sons, several grandsons and great grandsons besides a large number of friends and relatives.

SUPPLEMENT

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Medical Conference

XI BOMBAY TERRITORIAL MEDICAL CONFERENCE : : BOMBAY : : 1966

The 11th Bombay Territorial Medical Conference was held at Bombay on April 2-3, 1966 under the auspices of the I.M.A. Bombay Territorial Branch. Dr. M. A. Panwala presided over the Conference.

INAUGURUAL SESSION

The Conference was inaugurated on 2-4-66 at 3.00 P.M. at the Birla Matushri Sabhagar by Dr. N. N. Kailas, Deputy Minister for Education, Maharashtra State. Dr. Kailas also attended as the Chief Guest.

Dr. K U. Jhatakia, Chairman of the Reception Committee, welcomed Dr. N. N. Kailas and Dr. R. N. Choudhury, a senior Vice-President of the I.M.A. and other dignitaries and members of the medical profession. In course of his address Dr. Jhatakia paid a compliment to Dr. Kailas mentioning that the latter had always been helpful to the I.M.A. Stressing the need for increasing the I.M.A.'s membership strength in Bombay, he said that though in recent years the membership had been nearing a total of two thousand, there was scope for yet further rise in the number. Since the I.M.A. Building was nearing completion he hoped that it would be possible to render many more amenities and services to the I.M.A. members in near future. Concluding Dr. Jhatakia congratulated Dr. G. D. Purandare on his magnificent donation to the I.M.A., Bombay Territorial Branch with a view to organising a scientific oration which would be an impetus to members of the profession for carrying on scientific work.

Dr. K. M. Thakar, Joint Organising Secretary, read out the large number of messages received from, among others, the Governor of Maharashtra, several Ministers of the Government of India and the State Govenment, several past Presidents of the I.M.A. (Centre) and the State Branch, office-bearers of the I.M.A. and other well wishers of the Conference.

Dr. M. A. Panwala, the President-elect, was formally installed in the office by Dr. Shantilal C. Sheth, the retiring President. Dr. Sheth said that with great satisfaction he was handing over the charge to

DR. M. A. PANWALA DELIVERING THE PRESIDENTIAL ADDRESS AT THE BOMBAY TERRITORIAL MEDICAL CONFERENCE

Sitting (*L—R*): Dr. J. M. Kotwal, Dr. R. V. Sathe, Vice-Chancellor, Bombay University, Dr. N. N. Kailas, Deputy Minister for Education, Maharashtra, Dr. K. U. Jhatakia and Dr. R. N. Choudhury

DR. M. A. PANWALA GARLANDING DR. G. D. PURANDARE, DONOR OF THE "DR. G. D. PURANDARE ORATION AWARD"

Dr. Panwala who had been a person devoted to the cause of the I.M.A. for the last 18 years, out of which he had shouldered the responsibility for the office of Secretary of the Bombay Territorial Branch for about 16 years. He was sure that Dr. Panwala would steer the Association successfully towards its goal of service to the profession and the country during his term of office. He presented Dr. Panwala with the Presidential Badge and the Silver Book depicting the events of the Conference in token of his installation as the President of the Bombay Territorial Branch.

Following this Dr. K. U. Jhatakia garlanded Dr. Kailas, Dr. Panwala and Dr. R. N. Choudhury and requested Dr. Kailas to inaugurate the Conference.

Dr. Kailas thanked the organisers of the Conference for inviting him to inaugurate it and expressed his pleasure at having got an opportunity to be present amongst the members of his own profession. He said that the I.M.A. was doing useful services in its field and he was happy to note that the members of the profession were giving the best account of themselves in many spheres. He was happy to learn that a Faculty of General Practitioners was being organised by the I.M.A., Bombay Territorial Branch and he complimented the Association on this endeavour. He hoped that every general practitioner would take advantage of the programme of this Faculty and thereby help himself to keep abreast with the ever expanding medical knowledge. Dr. Kailas also expressed his satisfaction on being informed that the Building of the I.M.A. at Bombay was coming up.

Complimenting Dr. M. A. Panwala on his election as President of the Bombay Territorial Branch of the I.M.A., Dr. Kailas said that in Dr. Panwala the I.M.A. had got a devoted worker. He particularly mentioned the work Dr. Panwala had done in the sphere of the E.S.I. Scheme and said that it was in the fitness of things that such a devoted and selfless worker was honoured with this high office. He reminded his audience that whenever Government came forward with any Bill affecting the medical profession, Dr. Panwala would always come forward to champion the cause of the profession and give useful suggestions. Turning to the present problems affecting the profession, Dr. Kailas said that the missionary zeal in the day-to-day work of the profession should prevail and he appealed to the members of the profession to see that the noble traditions were kept up and the high ideals of "Service before Self" allowed to permeate their daily life.

Turning to politics, he said that members of the profession who had interest in constructive politics should not hesitate to take it up. The cause of the profession should be better served by such politicians.

Dr. Kailas pointed out the need for a Social Club for medical men where they could join with their family members and relax. He said that this type of relaxation and social activities should be a must for each medical man. He hoped that the I.M.A. in Bombay would remember this when its building was ready.

Dr. Kailas after wishing Dr. Panwala all success during his term of office as President formally declared the Conference open.

After the inauguration of the Conference, Dr. M. A. Panwala rose to deliver his Presidential Address. In course of his address he surveyed the major issues confronting the medical profession in Bombay and dwelt on the problems of medical education, research and specialisation, training of the general practitioner, licentiate course in medicine, drugs control and the E.S.I. Scheme. After concluding his address Dr. Panwala informed the Conference that Dr. G. D. Purandare had graciously made a donation of a sum of Rs. 10,000/- to the Bombay Territorial Branch. He announced amidst loud applause that the Bombay Territorial Council had accepted this donation and decided to institute "Dr. G. D. Purandare Oration" every year. Dr. Purandare then formally handed over the donation to the President who thanked Dr. Purandare for this generous act and garlanded him. He further announced that Dr. G. D. Purandare Oration this year would be delivered by Dr. V. N. Shirodkar, an eminent gynaecologist, during the Scientific Session to be held on 3-4-66.

The President next requested Dr. N. N. Kailas to hand over Dr. C. L. Jhaveri's Award to Dr. K. V. Kulkarni whose paper on the subject 'Bacterial Contamination of Banked Blood and Evaluation of Use of Sulpha Drugs in Its Prevention' was selected by the Award Committee. Dr. Kailas presented Dr. K. V. Kulkarni the certificate of award and a cheque for Rs. 200/- amidst applause.

The inaugural function terminated with a vote of thanks by Dr. Nagindas N. Shah, Joint Organising Secretary, followed by the singing of the National Anthem.

SCIENTIFIC SESSION

The Scientific Session was inaugurated on 3-4-66 at 9-30 A.M. by Dr. P. V. Gharpure, a renowned pathologist and an Emeritus Medical Scientist (I.C.M.R.), at the Indian Merchants' Chamber Hall, Bombay. Dr. K. U. Jhatakia welcomed the guest speakers and the large number of members of the profession who thronged the hall.

Dr. Gharpure in his inaugural address said that it was a difficult task to organise scientific sessions and refresher courses and suggested that the speakers for the refresher courses should as far as possible include the senior general practitioners. He felt that the experience that the general practitioners gained was a 'Gold Mine' which could be of immense help. Dr. Gharpure was also of the opinion that the senior medical students should be allowed to discuss the subjects of general interest. He expressed the view that the refresher courses should contain besides lectures, hospital rounds, bed-side work etc. He paid a tribute to the I.M.A. for starting a Faculty of the I.M.A. College of General Practitioners in the city and hoped that the future programmes of the Faculty would be broadbased on the lines suggested by him.

The Session started with the reading out of the paper on 'Bacterial Contamination of Banked Blood and Evaluation of Use of Sulpha Drugs in Its Prevention', which was selected for Dr. C. L. Jhaveri Award this year.

Following this Dr. R. N. Cooper and Dr. B. B. Yodh read their papers on Medicine and Philosophy. Both these stalwarts of the profession enthralled their audience with their mastery and erudition. Dr. Cooper in particular gave in his paper profuse illustrations of his wit and wisdom and the audience greeted him with repeated cheers when he was presenting the paper.

After coffee interval under the chairmanship of Dr. Minochar B. Body a symposium was held on Pitfalls in Medical Practice. The speakers included Dr. R. N. Cooper, Dr. V. V. Shah, Dr. K. M. Masani, Dr. Sharat C. Desai, Dr. V. N. Bagadia and Dr. S. M. Merchant. They vividly narrated some of the pitfalls in which they had found themselves in the practice of medicine in their young days and warned the audience against the recurrence of the same.

After the lunch break, the session was resumed with the screening of a scientific film followed by the Dr. G. D. Purandare Oration. The Oration was delivered by Dr. V. N. Shirodkar on the subject-"Tubal Implantation in Sterility". Dr. M. A. Panwala, President, presented Dr. V. N. Shirodkar with the Oration Award in the form of a Silver Salver depicting the name of the Oration, the name of the recipient and the year. Dr. Shirodkar thanked the organisers and congratulated Dr. G. D. Purandare for instituting the Oration in his own life time because very few doctors were so fortunate as to watch such an event in their own life time.

The Dr. G. D. Purandare Oration was followed by a talk by Dr B. N. Purandare on Family Planning and General Practitioner. Dr. Purandare gave details regarding the different methods of family planning in vogue and evaluated these in the light of the recent advances in the form of pills and I.U.C.D. He appealed to the general practitioners to spread the knowledge of planned parenthood.

In the evening Dr. R. V. Sathe presided over a symposium on Hormones in Practice. The speakers included Dr. J. V. Bhatt, Dr. A. S. Nauvidekar, Dr. A. N. Gogte, Dr. D. J. Jussawala, Dr. P. M. Udani and Dr. C. L. Jhaveri. All the speakers discussed in detail the use of hormones in the speciality which they practised.

The different scientific subjects were presented at the Scientific Session in an interesting and informative manner by the speakers, whose popularity was evident from the repeated applause which they drew from the appreciative audience during the different sittings held between 9-30 A.M. and 5-30 P.M. on 3-4-66 and from the Hall remaining packed to capacity throughout.

The Scientific Session came to an end after a vote of thanks was proposed by Dr. S. S. Ajgaonkar, Joint Organising Secretary.

A subsidised Conference Lunch was held at Taj Mahal Hotel at 1.00 P.M. on 3-4-66. Dr. V. N. Shirodkar was present as the Chief Guest. Dr. Shirodkar was loudly cheered when he complimented the I.M.A. on the useful work done for the profession. He appealed to all members of the profession to join the I.M.A. and participate in its activities.

A dance ballet entitled 'Parivartan' (in Hindi) was staged at 8.00 P.M. on 3-4-66 at Shri Shanmukhanand Hall by Shri Yogendra Desai and party. Dr. G. D. Purandare who was present as the Chief Guest on this occasion thanked the organisers for having arranged a neat entertainment programme. He pleaded that the medical men should have a little more time for entertainment and other recreative programmes so that the creative art and talented artistes might get more appreciation. Dr. D. K. Palkar, Joint Organising Secretary, proposed a vote of thanks.

A brochure containing valuable articles on different subjects of interest to the general practitioners was brought out on the occasion of the Conference. The brochure contained an article on Indian Medical Council and the General Practitioner by Dr. R. V. Sathe, and another article on Maharashtra (Bombay Area) Medical Council and the General Practitioner by Dr. M. D. D. Gilder. Besides, it contained articles on Civil Defence and Medical Aid by the Municipality in Bombay City and on E.S.I. Scheme.

PRESIDENTIAL ADDRESS

In course of his Presidential Address Dr. M. A. Panwala said:

Let me first express my sincere gratitude to my colleagues in the Association for the high honour they have done by electing me unanimously to the high office of President of the I.M.A., Bombay Territorial Branch for this term.

On this occasion, I cannot proceed without expressing my high respects to the two stalwarts of the I.M.A., Dr. Chamanlal M. Mehta and the late Dr. C. S. Thakar, whose selfless services and devotion inspired me in 1947 to take active interest in the Association. I express my gratitude and indebtedness to them. I also thank all the Presidents and other colleagues, with whom I have had the honour and privilege to work for the Association as the Secretary since 1950. As the President for the ensuing term, I am well aware that I am following the footsteps of eminent men who adorned this high office with grace and efficiency. I shall try my best to emulate their example and serve the Association as best as I can.

Before I proceed further, I recall with pleasure the honour bestowed on Dr. Miss J. Jhirad, the well-known gynaecologist and obstetrician in the city and Dr. E. J. Borges, the reputed cancer specialist at the Tata Memorial Hospital, Bombay. Both of them are well-known all over India and internationally in the spheres of their respective specialities. They have been honoured by the conferment of the title "Padma Shri" by the President of India on this year's Independence Day, an honour which they so richly deserve. I heartily congratulate them and wish them still greater honours in the future.

The problems of health and of the medical profession are many and varied and have hitherto been referred to many a time from this platform. I shall therefore refer briefly only to a few of them.

MEDICAL EDUCATION:

Bombay is proud of the role it has played in the field of medical education. Its first medical college, one of the oldest in the country came up in 1845, long before the birth of the Bombay University in 1857. Since then it has laid down traditions in medical Education, which have been further enhanced by the newer institutions. Today this city has four medical colleges, admitting over 550 students annually.

I wish to refer here to an important aspect in staffing of the clinical sections of these medical colleges, viz., the honorary system, which has prevailed for several decades. This city is proud of the services of some of its best specialists to these medical institutions in honorary capacity. The authorities concerned are keen today to have these institutions staffed by full-time salaried teachers. However, in spite of their keenness, they have not succeeded in doing so over the last twenty years. I believe the scales of salaries and the conditions of service offered at present will never attract well qualified persons to accept these full-time posts. Besides, if the whole clinical staff has to be full-time, it would be a very expensive proposal to the authorities concerned. Besides, once confirmed, there is no guarantee of efficiency of work from these partly dis-satisfied personnel. Under the honorary system, on the other hand, the services of very highly qualified and trained persons are available with comparatively little financial involvement. A good administrator can always regulate the working of his institutions so as to get the best of the services of these honoraries. Bombay is proud of the large number of specialists, who have contributed so largely to the teaching in our medical colleges, all these years. I am personally in favour of the honorary system not only in Bombay but at all other places where services of such able honoraries may be available.

RESEARCH AND SPECIALISATION:

The medical science has advanced enormously during the last two decades. This has been due to intensive research activity in the last few decades. This has led to specialisation and development of specialities and sub-specialities. As in the West, our students also lean towards specialisation. In this connection, I am happy to note that the Bombay University has just started an Institute of Basic Medical Sciences. This is the first Institute of its kind in this part of India. And I trust, it helps to promote fundamental research in basic medical sciences, with its impact on clinical sciences in due course, favouring specialisation.

TRAINING OF THE GENERAL PRACTITIONER :

It is, however, necessary to realise that though we need specialist our greater need today is the general practitioners for the health services to the masses. They are the backbone of the medical profession. Only they, as family physicians, can act as "guides, friends and philosophers to the families in their charge". We should, therefore, orientate our education so as to develop good general practitioners who would not only treat the common diseases but would also render various social and health services that may be required and expected of them. In this way general practice may be well developed and raised to the dignity of a speciality. In this connection, I would refer to the role played by the I.M.A. in the past. I also congratulate the Central I.M.A. for the establishment of its College of General Practitioners and the Bombay Territorial Branch for the establishment of its Faculty of that College very recently.

LICENTIATE COURSE :

The licentiate course was abolished and the last medical school was closed only recently. With this it was felt that the world-accepted ideal of one minimum standard of basic medical qualification had been achieved. It was, therefore, a surprise to learn of the revival of the licentiate course by the Government of Maharashtra. This is a retrograde step, the reasons for which are difficult to comprehend. If the Government feels that the new licentiates will go to the rural areas, they will be disappointed. In the past the licentiates have not done so and there is no guarantee that they would do so in future. With the present 85 medical colleges and with many more to start during the next Five Year Plan period, these institutions will admit over 11,000 students to the medical colleges annually. This is bound to lessen the shortage of doctors in due course. The big cities are already getting overcrowded with doctors. If reasonable terms of service are given a number of these doctors would prefer to go to smaller places in the periphery, thus easing the shortage of doctors there. May I urge that the Government may consider their attitude in this case and avoid the stigma of a retrograde step in this otherwise progressive State?

E.S.I. SCHEME :

This is aimed to be a Social Security Scheme. May I therefore ask whether it is not the duty of the authorities of the E.S.I. Corporation to see that any person, who is eligible for its benefits gets them automatically? They would say "Yes"; but as in any other Government machinery, they would not provide these benefits till asked for. At present the insured person realises that he is eligible for medical benefits in the scheme only after he gets the temporary certificate or much later the identity card. I suggest that every insured person, who joins the insurable employment, be asked to select his doctor from the very first day and get the doctor's name entered by the doctor in the declaration form, which is required to be filled in during the first week of employment. By this, he is made aware that he is eligible for medical benefits through that doctor from that very day. At present, he is not aware of it and as he does not go for his minor ailments to the doctor, but suffers. Should the law take advantage of his ignorance, or should it introduce such procedures to enable the person to get the benefit of the law?

Some of the complaints like short-supply of drugs, short-supply of stationery at the A.M.O.'s office or the local offices, and the like are recurring affairs. Can not the administration over-come them? Similarly, the problem of dis-entitlement and failure of re-entitlement in time causes great hardship to the insured persons and the doctors.

Some of my colleagues, who are now much senior in practice have neglected their private practice and have devoted themselves to the E.S.I. Scheme as the only mode of their medical practice. The recent proposals—1) for compulsory retirement at 58 years of age even in spite of good health and 2) for permitting the size of the panel as per size of the dispensary—have given them a feeling of uncertainty and annoyance by such minor multiple pin-pricks. They feel so, and rightly they ask, "why did the authorities not inform us about these conditions in 1954, when they appealed to us to join the E.S.I. Scheme and thus to serve the industrial population?" And now after the long period of 12 years, (1) if these authorities suddenly force the doctors to retire and that too without any compensation, what do they expect the doctors to do? They will not get any private practice as they have lost all the contacts with the private patients during this period. (2) The authorities should have consideration that the doctors have dispensaries in 'pacca' constructed rented buildings, which cannot expand like slums that are expanding on the road. My appeal to the authorities is that they should not disturb these practitioners, who have served the scheme in good faith, by proposals for minor changes in the terms of service or by addition of new terms. They should be fair and should morally honour the conditions of service in operation at the time of enrolment on the panel.

The question of consideration of capitation fee of Insurance Medical Practitioners is before the authorities. The fee was fixed in 1960. It is earnestly hoped that it would be increased to the extent of increase in the cost of living.

The panel system of medical help, accepted all over the world as one of the good systems in the running of health insurance schemes, has worked satisfactorily in the city of Bombay. It could function even much better if some of the defects existing in its functioning at present are speedily remedied.

DRUGS AND EQUIPMENT :

I take this opportunity to express my own appreciation of the Drugs Control Department in Maharashtra State, which has been active and vigilant in its policy of maintaining the prescribed standards for the manufacture and sale of drugs. It is their alertness that has created faith of the medical profession in the drugs made here; and I am proud to say that it has directly helped the Indian pharmaceutical industry to establish its reputation and the export market also. Today, the drugs by an Indian firm of repute are as trustworthy as those of any of the foreign firms.

In this connection, it is surprising that the Maharashtra State, having 565 pharmaceutical firms, manufacturing 2/3 quantities of drugs put in the Indian market has no drug testing laboratory. To ensure the maintenance of standards and develop new methods for testing drugs and to gain faith of the public in our drugs, a drug testing laboratory is of great importance. The need gets urgent as newer drugs are coming in the market and as the Drugs Act is being extended to preparations of other systems of medicine, which may also need testing facilities in times to come. I therefore hope that such a testing unit will be established soon.

We are proud to say that in 1964, India manufactured drugs worth Rs. 175/- crores as compared to Rs. 11/- crores in 1948. This is good in figures, but is it equally good in terms of advance of basic industry? I pose a question, whether the authorities should lay down a condition that unless the firm has a certain amount of capital and facilities it should not be given a licence to manufacture drugs? Drugs are not like any other industrial products. They have to be of high specific standards as they have to be used on human beings. The Drugs Controller checks random samples; but some sub-standard products could still circulate. It is, therefore, necessary that conditions be so developed that standards will be maintained by the firms concerned. Vigilence must be maintained to prevent the coming of small mushroom firms.

I am sure that the industry and all concerned desire that the drug available in the market is the best and the cheapest. How can we achieve both these? Can we avoid marketing of one and the same preparation in multiple number of combinations having minor differences, in their formulae and replace them by a few standard laid down formulae. Will this save the overhead cost? Will this be in the interest of the public?

The present price restriction on drugs is very unsatisfactory and operates as a punishment to the honest established manufacturers though appearing to be a boon to new entrants in the drug industry. The old firm cannot sell its drugs at a price higher than its price on 1st April 1963, while a new firm can buy raw materials at any price and sell the same finished product even at double the price than that of the old established manufacturer. This is due to the fact that there is no price control on raw materials required by the drug industry, while there is a price control only on finished products, which were in existence on 1st April, 1963. It is very desirable that this sort of price control is abolished as early as possible or else made more reasonable and practicable.

The medical colleges and hospitals in India have increased tremendously in number and size during the last ten years. While this is a welcome development, it must be realised that these institutions, as they exist at present, cannot give proper services. They need equipment—scientific instruments and appliances, electromedical instruments, drugs and materials for routine use and for investigation and treatment. The authorities should see that along with expansion of colleges and hospitals, drug industry as well as the industry concerned with the manufacture of scientific instruments—surgical and electromedical appliances are also established in India. I wish that top priority be given to import licences for the establishment of industry to manufacture these. Till these are manufactured in India, adequate import licences to import important items must be granted *immediately* so that the health of the masses does not suffer due to the present shortage of material.

I would appeal to the profession not to prescribe drugs of the brand, not available. In the majority of cases equally good alternative brands are available. It is our duty to impress on patients not to be 'Brand' crazy. In this connection, I may mention that the medical profession and the drug industry are complementary. Greater liaison between them will promote the betterment of the public, the drug industry, the medical profession and the medical science.

NATIONAL CHARACTER :

We as independent nation, must build up our national character. Medical profession has a great responsibility in this, on account of its education and on account of the opportunities of contact which it has with all classes of people—rich, middle and ordinary—both economically and intellectually. We must use the materials, 'Made in India' in our daily personal life and in practice. In the case of an item not manufactured in India, we must try to do without it unless its need is a "must". My appeal is that our people must give up their craze for foreign goods and use Indian goods wherever possible.

The pay-scales and allowances of the medical personnel in State Government services and the stipends of interns and resident medical staff of hospitals are at present under consideration. The Association has made representation for improving them. I hope, these problems will receive due attention of the respective authorities.

The Family Planning programme, initiated by the Government needs active support of the public and we, the medical profession must act as a link between the Government and the public. You all know the significance of family planning towards national and individual economy and must do your best.

On behalf of the Indian Medical Association, I congratulate the members of the medical profession on their spontaneous response to the cause of Civil Defence in last September and I am sure that the medical profession shall always be ready to serve the country in times of need.

I appeal to my colleagues that they must render their professional services to the best of their abilities, not only as skilled scientists but also with humane touch. They will thus have the satisfaction at their heart of having done full justice to their conscience.

I appeal to my colleagues in this city to join the I.M.A. and make it an organisation, strong and representative of our profession, like the American Medical Association. The Association in times of need will thus have better opportunities to guide and help its members in solving the problems and difficulties that arise in their practice and express its views on medical services.

Before I conclude, may I request my seniors for their guidance to me in carrying out the duties of my office and may I request every member of the Association for his full support and co-operation which I hope will be generously available.

Branch Notes

Amritsar Branch—A symposium on War Injuries was held on 17-1-66 under the joint auspices of the branch and Staff Clinical Society of the Medical College, Amritsar. At the outset Dr. Harcharan Singh, President of the branch, welcomed the members and the guests and spoke a few words in appreciation of the work of the young surgeons, who had volunteered their service for the local Military Hospital during the recent Indo-Pak conflict. Principal Y. Sachdev of the Medical College presided over the symposium.

Among the participants Dr. Gurmail Singh spoke on Aetiology and Management of Traumatic Shock and Dr. D. R. Manhas on Treatment of Burns. Major I. Kashyap spoke on Experiences in the Management of Wounds in the Forward Surgical Centre. Dr. Harinder Pal Singh spoke on Anaesthesia in War Surgery. Dr. D. P. Sanan spoke on Management of Injuries of Head and Neck. The talks were followed by lively discussions.

A similar symposium was held on 25-1-66. Dr. Ajmer Singh spoke on the Management of Abdominal Injuries and Dr. Balwant Singh on the Management of the Chest. Major Sinha spoke on the Recent Concepts in the Treatment of Vascular Injuries. Dr. Gurdev Singh spoke on Management of Limb Injuries. A lively discussion on the subjects presented and suitable replies furnished by the speakers to the questions from the audience made the symposium a success.

Principal Y. Sachdev who presided over the symposium thanked the speakers for disseminating their valuable experience in reducing the mortality from war injuries.

Bangalore Branch—On 11-11-65, a film show on Arlidin was arranged by courtesy of U. S. Vitamin and Pharmaceuticals Ltd. at the M.M.A. Hall, Fort, Bangalore.

Dr. Katherine Kuder, Consultant, Ford Foundation, New Dehli, spoke on Intrauterine Contraceptive Device at a scientific meeting arranged on 12-11-65 at the M.M.A. Hall.

On 16-11-65 lecture was arranged on Drugs Control Administration in Different States. Mr. Shanbhogue, Drugs Controller of Mysore, spoke on the subject.

Six films were shown to the members at a show arranged by courtesy of Geigy Ltd., on 9-12-65.

Dr. B. N. Lingaraju, Dean, Bangalore Medical College, Bangalore, spoke on Medical Education in Afghanistan at a scientific meeting held on 14-12-65. This was followed by the screening of 3 films by courtesy of Sandoz (India) Ltd.

The branch conducted a Refresher Course on Organisation of Medical Service during Emergency for a period of one week beginning from 18-12-65. Dr. K. Nagappa Alva, Minister for Health, Mysore, inaugurated the course. A cheque representing the donations to the National Defence Fund made by the members was handed over to the Minister. Lectures were arranged on various subjects relating to emergency medical services. All local branch Secretaries of the I.M.A. in the State of Mysore, District Surgeons and District Health Officers had been invited to attend the course.

On 22-1-66 a condolence meeting was arranged at the M.M.A. Hall, to mourn the demise of Shri Lal Bahadur Shastri. Maj. Gen. S. L. Bhatia presided. Dr. M. S. Mehkri, Dr. P. Krishna Rao, Dr. R. V. C. Rao and Dr. S. Raghavendra Rao spoke paying tributes to the departed leaders.

A scientific meeting was arranged at the M.M.A. Hall on 24-1-66, where Dr. David Stark Murray, Group Pathologist of the Kingsten, (Surray), U.K. spoke on National Health Service in U.K.

The Republic Day was held on 26-1-66. Dr. S. T. Puttanna, President of the branch hoisted the National Flag.

Bengal State Branch — A special meeting of the Bengal State Council was held on 9-7-66 to voice the protest of the medical profession in Bengal against the proposed bill coming up in the Parliament for enlisting unqualified persons carrying on practice in scientific medicine.

The meeting passed a resolution strongly condemning the proposed bill. Describing the bill as incompetent to bring about stoppage of quackery the resolution stated that it would impair the growth and development of scientific medicine in the country apart from exposing the members of the medical profession, who have been practising modern scientific medicine after having duly qualified for the same, to unhealthy competitions. The resolution deplored that the propounders of the bill resorted to a retrograde measure like the present one instead of accepting the recommendations of the I.M.A. on the deployment of unqualified medical practitioners, practical steps about whose resettlement and rehabilitation had already been enunciated by the I.M.A. in its booklet on Anti-Quackery. Expressing the view that the bill was impracticable for the purpose of successful enforcement, the resolution expressed the apprehension that it would bring about the most undesirable consequences upon the health of the unsuspecting people by lulling them into a false sense of security. The resolution therefore called upon all right thinking people in the country, the legislators, the members of the medical profession and the members of the I.M.A. to raise their voice in order to cry halt to further consideration of the bill and to stop the introduction of such measures in the future. The resolution called upon all qualified registered medical men to dissociate with any move supporting the registration of the quacks. It called upon the I.M.A. (Centre) to hold an All-India Protest Day to be followed by one day's All-India Strike by members of the medical profession, when they would attend only emergency cases.

The meeting drew up an elaborate programme for action to be taken by the State Branch and also suggested a course of action for consideration by the I.M.A. (Centre).

The I.M.A. Headquarters was requested to (1) call an emergent meeting of the Central Council and/or the Working Committee, (2) arrange deputations consisting of representatives from every State to wait upon the Prime Minister and the leading persons in the Ministry of Health, (3) to publish suitable articles featuring this issue in the J.I.M.A. and (4) to direct all State Branches to convene protest meetings.

The meeting suggested a programme for implementation by the State Branch which included among others the following steps :

1. To organise mammoth meetings of the members of the medical profession where the elites of the city including High Court judges, barristers, advocates, Principals of colleges and the Vice-Chancellor, prominent social workers and public leaders, newspaper editors and press representatives are to be invited.
2. To send memoranda and deputations to the State Health Minister and to ascertain her opinion and stand regarding the proposed bill.
3. To meet the Registrar, West Bengal State Medical Council to discuss the subject.
4. To publish suitable articles in the Bengal Medical Journal and other medical journals.
5. To observe a Protest Day and later on one day's strike by the medical profession throughout the State.
6. To circulate a protest statement to be signed by all past-Presidents of the State Branch.
7. To issue circulars to all members asking them to desist from helping the quacks in issuing certificates or in other matters.
8. To find out and blacklist the members of the profession who are actively or passively helping or supporting the quacks and their movement.
9. To ask the local branches to reiterate the stand taken by the State Branch in its resolution and send copies of this resolution to the I.M.A. Headquarters, the Union Health Minister, the State Health Minister, the State Government and the State Branch of the I.M.A.
10. To call a branch secretaries' conference (1) to fix up the date for the Protest Day and (2) to hold socio-medical conferences under the auspices of individual branches or a group of contiguous branches.

In addition to the above programme the State Council suggested that in order to vindicate the stand of the I.M.A. to the legislators both at the State and at the Central level (a) a general appeal should be made to all members of the Parliament; (b) the doctor members of the Parliment should be individually met and (c) members of the State legislatures should be approached at the District or at the constituency level.

Bhopal Branch —A meeting was held on 7-2-66 under the chairmanship of Dr. P. L. Tandon. At the outset the members observed two minutes' silence as a mark of respect to the memory of the late Prime Minister of India Shri Lal Bahadur Shastri.

Dr. S. S. Yeshikar presented a case of acute lymphocytic leukaemia. Dr. S. D. Singh and Dr. P. L. Tandon dealt with the possibilities of cholostoma and Sternberg's lymphoblastic leukaemia respectively. Dr. R. K. Bhargava read a paper on the Diagnostic Problems in 80 Cases of Coronary Artery Diseases Studied. The discussion went round the causes of pain in coronary artery diseases.

The meeting closed with a vote of thanks by Dr. B. Kumar, Hony. Secretary.

Cannanore Branch —A clinical meeting was held at the military hospital, Cannanore on 30-1-66 with Dr. R. F. Peters, President, in the chair. Thirty-three members were present.

The President requested the members to stand up in silent prayer in memory of the late Prime Minister Shri Lal Bahadur Shastri. Following this a resolution was passed condoling the demise of Shri Shastri.

In his introductory remarks Dr. R. F. Peters thanked the medical officers of the military hospital for the arrangements made for the meeting. He then read out a letter from the Registrar, Travancore Cochin Medical Council, Trivandrum. After discussion, it was decided that each member might write to the Assistant Excise Commissioner to register his name to enable him to procure the drugs which were considered dangerous.

Dr. C. E. Oommen, Hony. Secretary, introduced Dr. N. M. Mathai, Professor of Paediatrics, Medical College, Calicut to the members. Dr. Mathai gave a talk on Nutritional Oedema in Children. This was followed by a lively discussion in which many members took part. After a vote of thanks by the Secretary, the meeting came to a close.

Coimbatore Branch—At a meeting held on 20-11-65 under the chairmanship of Dr. S. G. Rajarathnam, president of the branch Dr. Warner Bushman of the University of Humboldt, East Germany, addressed the members on The Use of Ultrasonics in Medicine. The talk was followed by a lively discussion. Dr. K. S. Shanmugham and Dr. P. S. Parthasarathy entertained all present to tea and refreshment. The meeting closed with a vote of thanks proposed to the speaker and the hosts by Dr. S. Jayakumar, Hony. Secretary.

Dr. P. N. Ramaswamy Naidu Memorial Lecture was held under the auspices of the branch on 11-12-65. Dr. S. G. Rajarathnam took the chair. About 100 members and invitees attended the lecture.

Welcoming the gathering Sri G. K. Sundaram, President of the Dr. P. N. Ramaswamy Naidu Memorial Trust, gave a short sketch of the life and the contributions of late Dr. Naidu as a member of the medical profession. Following this the President introduced Dr. R. Subramaniam, Professor of Medicine, Madras Medical College and Physician, Government General Hospital, Madras. Dr. Subramaniam spoke on Complications That Occur Secondary to Cirrhosis Liver and Their Management. He supplemented his talk by a number of slides.

The Hony. Secretary proposed a vote of thanks to Dr. Subramaniam, Sri G. K. Sundaram and Dr. N. G. Kondaswamy, the last named for his help in bringing out the souvenir on the occasion of the lecture.

The first lecture for the Refresher Course in Emergency Medical Services was held on 18-12-65 in the Association Hall with Dr. S. G. Rajarathnam in the chair. 85 members were present. Dr. M. Natarajan, Orthopaedic Surgeon, Madras Medical College spoke on Management of Mass Casualities in An Emergency. He illustrated his lecture with the help of x-ray slides. The Hony. Secretary proposed a vote of thanks to the speaker and the host of the meeting, Dr. Mrs. Anna Vareed, following which the meeting terminated.

The second lecture for the Refresher Course was held on 29-12-65 in the Association Hall with Dr. S. G. Rajarathnam in the chair. 75 members were present. On being introduced to the members by the President Dr. K. C. Nambiar, Consulting Surgeon, Government Stanley Hospital, Madras spoke on The Management of Abdominal Injuries. The meeting closed following a vote of thanks proposed by the Hony. Secretary to the speaker and to Dr. V. Subbian, host for the occasion.

The third lecture for the Refresher Course was held on 22-1-66 in the Association Hall, Dr. S. G. Rajarathnam presiding.The President introduced the guest speaker Dr. A. A. Asirvatham, Professor of Surgery, Madurai Medical College and Surgeon, Erskine Hospital, Madurai. Dr. Asirvatham spoke on Management of Injuries of Chest and Head and Neck. The meeting closed with a vote of thanks proposed by the Hony. Secretary to the speaker and to the hosts for the meeting, Dr. C. N. Santhanam and Dr. I. Pichai Robert.

Dhar Branch—In the annual meeting held on 16-11-65 the following office-bearers were elected. President—Dr. R. K. Jaimini; Vice-President—Dr. Mrs. N. A. Joshi; Secretary—Dr. P. Sharma; Joint Secretary—Dr. S. S. Kulkarni; Treasurer—Dr. S. P. Nigam;

Following the election, Dr. Kulkarni presented a case of galactocele for discussion.

Dohad Branch—A meeting was held at the residence of Dr. D. C. Kadakia on 27-2-66 to give a farewell to Dr. R. N. Sharma, President of the branch and D.M.O., Railway General Hospital, Freelandganj, Dohad, on the eve of his transfer to Ajmer. Speeches recalling his sincere services as a surgeon to the Railway employees and the public of the town and mentioning his sympathy for the patients were made by a number of speakers. They wished him prosperity and a long life and hoped that he would one day visit Dohad as C.M.O. of the Western Railway, Medical Department. Drs. J. M. Shah, Arvindbhai Shah and Dhananjay Gandhi, consultants from Baroda, were present on special invitation. After light breakfast and tea, the meeting terminated.

Ghatal Branch—The annual meeting was held on 25-12-65, Dr. Himangshu Bhusan Ghoroi presiding. At the outset a resolution was passed condoling the sudden demise of Dr. Jatish Chandra Ghose, a past President of the branch. The following office-bearers were elected unanimously for the year 1965-66: President—Dr. Himangshu Bhusan Ghoroi; Vice-Presidents—Dr. Satyahari Choudhury and Dr. Swadesh Choudhury; Hony. Secretary—Dr. Nirmal Pal; Treasurer—Dr. Jitendra Nath Roy; Representative to the Central Council and the State Council—Dr. Swadesh Choudhury.

The following resolutions were also passed in the meeting: 1. Resolved unanimously that the Loop should be available to genereal practitioners. 2. Resolved that medical examination fees for Insurance cases should be enhanced by Rs. 4.00 in each category. 3. Resolved unanimously that Dr. Swadesh Choudhury be elected member of the Sub-divisional Hospital Committee in place of late Dr. Jatish Chandra Ghosh.

Ghataprabha Branch—The following office-bearers were elected for the year 1965-66 in the annual meeting of the branch: President—Dr. M. K. Vaidya; Vice-President—Dr. B. C. Ajari; Hony. Secretary—Dr. N. R. Dhavale.

Giridih Branch—The annual general meeting was held on 5-12-65 in the Block Office at Dhanwar with Dr. H. Chatterji, President of the branch, in the chair.

The following office-bearers were elected for the year 1965-66: President—Dr. H. C. Chatterji; Vice-Presidents—Dr. A. N. Das and Dr. N. K. Das; Hony. Secretary—Dr. I. Ahmad; Joint Secretary—Dr. S. Chowdhury; Treasurer—Dr. H. P. Shaw; Auditor—Dr. Ramacharan; Members of the Executive Committee—Drs. S. N. Misra, F. Rahman, A. B. Roy, V. P. Sinha (Dumri), M. Balo, D. D. Singh and Dr. Mrs. P. Nandy; Representative to the Central Council and State Council—Dr. S. Chowdhury; Alternate Representative to the State Council—Dr. H. P. Shaw.

A Scientific Committee was also formed with Dr. N. K. Das as Chairman and Drs. S. N. Misra, D. D. Singh, M. Balo, S. Bhattacharya, D. D. Singh, Dr. Ramacharan and Dr. Mrs. P. Nandy as members.

In an emergent meeting held on 13-1-66 under the presidentship of Dr. H. Chatterji, the demise of Prime Minister Shri Lal Bahadur Shastri was mourned and a resolution was passed conveying the heartfelt sympathy of the members of the branch to the bereaved family.

Hathras Branch—A meeting was held at the residence of Dr. S. K. Pathak on 17-9-65. Dr. A. N. Rai was unanimously elected Hony. Secretary in place of Dr. R. Prasad who had been transferred to Kanpur.

On 21-12-65 a meeting was held at the residence of Dr. P. D. Singhal. The following doctors participated in the discussion held on Glaucoma: Drs. R. N. Wahi, Vidya Bhushan, K. C. Shukla, K. M. Lall L. K Trivedi, A. N. Rai and Dr. Kamla of the S. F. Hospital, Hathras.

In an emergent meeting on 14-1-66 the demise of

Prime Minister Shri Lal Bahadur Shastri was mourned. Members observed one minute's silence as a mark of respect to the memory of the departed soul.

Jagraon Branch—The following office-bearers were unanimously elected for the year 1965-66: President—Lt. Col. Dr. Jagdishar Singh Gill; Vice-President—Dr. C. L. Verma; Hony. Secretary—Dr. Avtar Singh Gill; Joint Secretary—Dr. Mrs. Jagjit Kaur Gill; Treasurer—Dr. Harpal Singh Gill; Representative to the Central Council—Dr. Mulkh Raj; Representative to the State Council—Dr. Goverdhan Das.

Kancheepuram Branch—A meeting of the branch, which had been formed recently in the Chingleput District of Madras, was held on 10-2-66. The following office-bearers were elected for the year 1965-66: President—Dr. S. Ranganathan, D.M.O., Kancheepuram; Vice-President—Dr. Ramamurthy Little Kancheepuram; Hony. Secretary and Treasurer—Dr. P. R. Raghuraman, Big Kancheepuram.

K. G. F. Branch—At the annual general meeting held on 30-9-65, the following office-bearers were elected: President—Dr. B. N. Krishnamurthy; Vice-President—Dr. Abdul Samad Sheriff; Hony. Secretary—Dr. C. Rajasekhar; Joint Secretary—Dr. R. G. Lavi.

A clinical meeting was held at the K. G. F. Hospital on 19-11-65. 15 members were present. Dr. B. N. Krishnamurthy presented two cases of tubercular meningitis. He stressed the importance of the diagnosis based on the first sample of C. S. F. even though subsequent C. S. F. examination showed a quick decrease of the Protein content and sugar almost coming to normal. A case of pericarditis of viral origin was also presented for discussion. The meeting came to a close after a lively discussion on the cases demonstrated.

On 31-12-65 a symposium was held on Headache at the Civil Hospital, K. G. F. Dr. B. N. Krishnamurthy, Dr. M. Punvamurthy, and Dr. C. Rajasekhar took part in the symposium which was attended by a large number of general practitioners.

On 28-1-66 Dr. A. M. Shankara Gowda, Surgeon, K. G. F. Hospital gave a talk on Experiences in the Treatment of Fractures by Open Method at the K. G. F. Mining Hospital. He illustrated the talk with the help of x-ray films.

M. P. State Branch—The following office-bearers of the State Branch were elected for the year 1965-66 in the State Council meeting held on 13-2-66 at Jabalpur: President—Dr. S. C. Barat, Jabalpur; Vice-Presidents—Dr. R. N. Chatterjee, Jabalpur, Dr. R. B. McClure, Ratlam, and Dr. R. K. Singh, Rewa; Hony. Secretary—Dr. S. S. Shrivastava, Jabalpur; Joint Secretary—Dr. V. P. Khare, Jabalpur; Secretary to the President—Dr. B. P. Awasthy, Jabalpur; Hony. Treasurer—Dr. B. N. Chakravarty, Jabalpur; Representative to the Central Working Committee—Dr. R. N. Chatterjee, Jabalpur and Dr. G. S. Wagle, Indore; Alternate Representatives to the Central Working Committee—Dr. R. A. Bhagwat, Indore and Dr. B. S. Kale, Gwalior.

Madhipura Branch—A meeting was held on 26-2-66 at the residence of Dr. R. N. Ghosh with Dr. B. P. Sinha in the chair.

The question of organising a baby show during the Health Week was considered. With a view to organising the show a sub-committee was formed with Dr. B. B. Sharma as convener and Dr. K. P. Mondol and Dr. R. N. Ghosh as members. It was decided to request the Deputy Superintendent of the Subdivisional Hospital to instruct the staff of the Child Health and Maternity Centre to assist the sub-committee in this matter.

It was decided to approach the Directorate of Health Services through the Bihar State Branch for supply of T.A.B. vaccines to the branch.

The meeting also decided to request the State Branch to consider the Madhipura area as a special area for D.P.T. Immunisation Programme and supply a consignment of D.P.T. vaccine free of cost to the branch.

The meeting resolved to request the State Branch to send speakers to speak on the following subjects: 1. General Medicine. 2. Management of Cardiac Failure. 3. Breast—Common Diseases, Diagnosis and Treatment. 4 Glaucoma—Diagnosis and Treatment.

In a resolution the opinion was expressed by the members that the post of Director of Health Services should be a tenure post for a term not exceeding three years.

In another resolution the difficulty of the members in obtaining drugs like plasmex, sulphaguanidine and sulphadiazine, benzyl benzoate emulsion, glucose saline etc. was pointed out and it was decided to draw the attention of the I.M.A. (Centre) and the State Branch to this difficulty.

The meeting requested Dr. R. N. Ghosh to organise a family planning education programme on a date convenient to him.

Nagpur Branch—At the annual general meeting held on 28-1-66 the following condolence resolution was passed:

This meeting of the I.M.A. Nagpur Branch held on 28-1-66 places on record its deep sense of sorrow at the sad and sudden demise of one of its members Dr. M. B. Joshi and sends its condolence to the bereaved family.

Tiruchirapalli Branch—A monthly meeting was held on 11-12-66 at the Medical Association premises. 50 members were present. Dr. V. K. Ranganathan took the chair.

After tea, to which the members were treated by Dr. S. David and Dr M. Fazlullullah, the President informed the members that the District Collector could not come due to some urgent engagement and he had sent the R.D O., to address the members on his behalf.

The R.D.O. in his address requested the members to help the national cause by investing gold in the Gold Bond Scheme of the Government of India. Some members responded on the spot to his appeal and others promised to cooperate with the scheme.

The President then introduced Dr. V. Jayakumaran from Coimbatore to the members. Dr. Jayakumaran gave a talk on Blood Diseases in General Practice.

The Hony. Secretary proposed a vote of thanks to the speaker following which the meeting terminated.

A monthly meeting was held on 8-1-66 at the Medical Association premises, 50 members attending. Dr. V. K. Ranganathan took the chair.

After the members had been treated to tea by Dr. Mrs. Indira Rangarajan and Dr. R. Kamalam, the Hony. Secretary welcomed Dr. G. T. Gopalakrishna Naidu, President—elect of the Madras State Branch of the I.M.A. and other guests who came from Karur and Coimbatore.

The President introduced the guest-lecturer for the day Dr. Miss P. Isiah, Resident Medical Officer, K. M. Hospital, Coimbatore to the members. Dr. Miss Isiah spoke on Obstetric Emergencies.

A circular from the Madras State Branch of the I.M.A. regarding the proposed lecture on Internal Fixation of Fractures, Its Uses and Abuses by Dr. B. Mukhopadhya, an eminent Orthopaedic Specialist associated with the Madras Medical College, was read for information of the members.

The Hony. Secretary proposed a vote of thanks to the speaker and to the hostesses, following which the meeting terminated.

CORRIGENDUM

Vol. 46, No. 12, June 16, 1966 Issue

PAGE 682, COLUMN 1, LINES 19 AND 20 FROM ABOVE:

In place of "Dr. S. P. Shukla, Medical Officer, Bijawar, etc.," *please read* "Shrimati Shukla, wife of Dr. S. P. Shukla, Medical Officer, Bijawar, etc."

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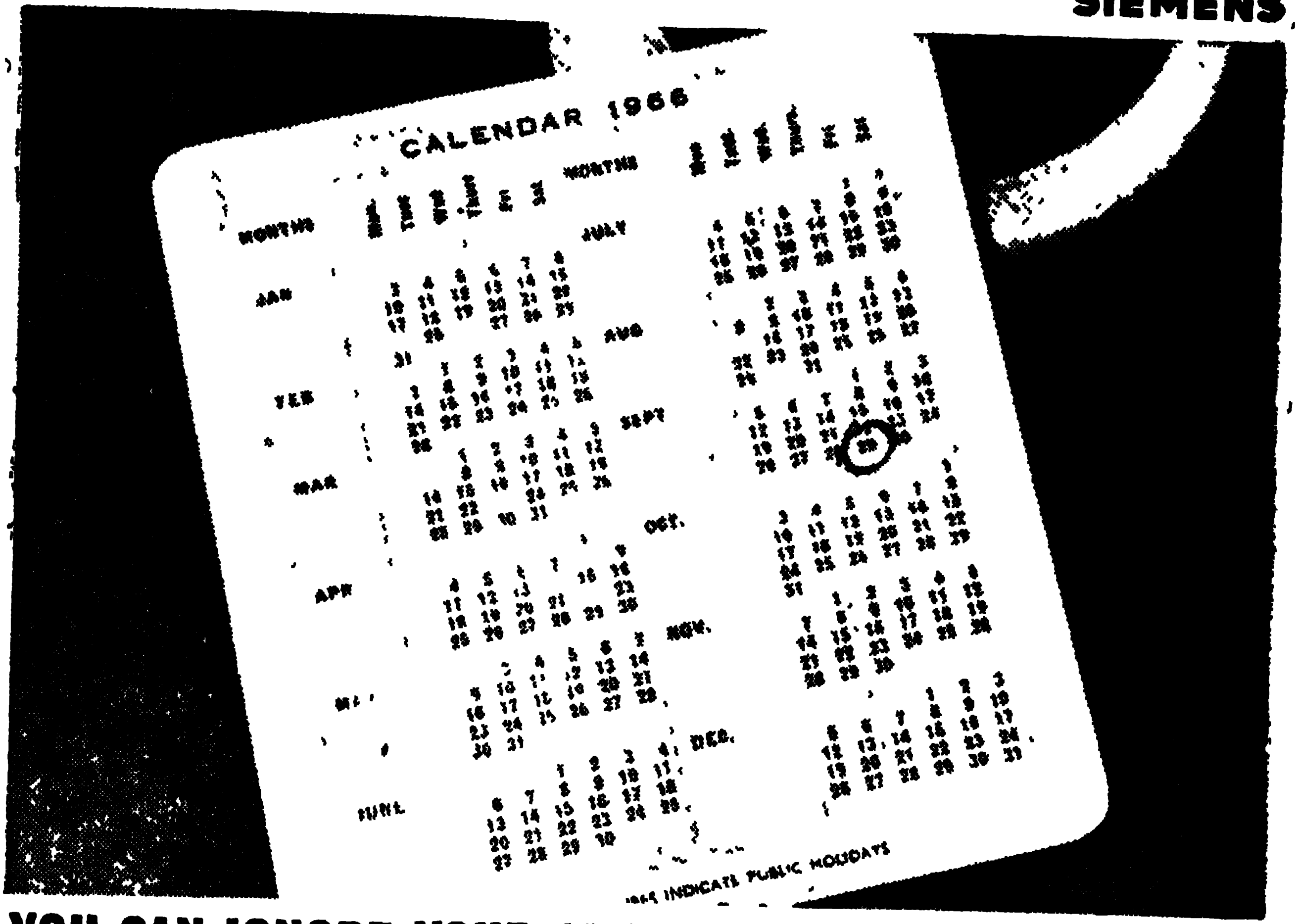

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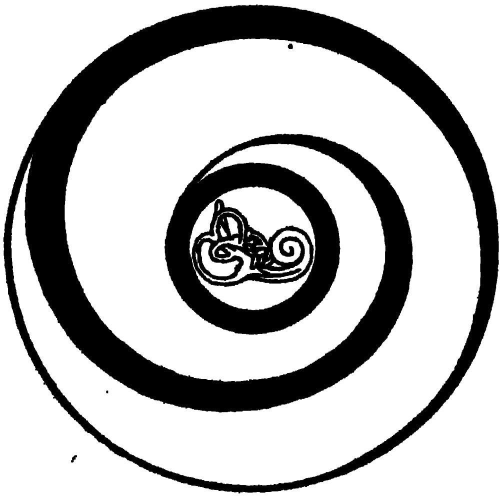

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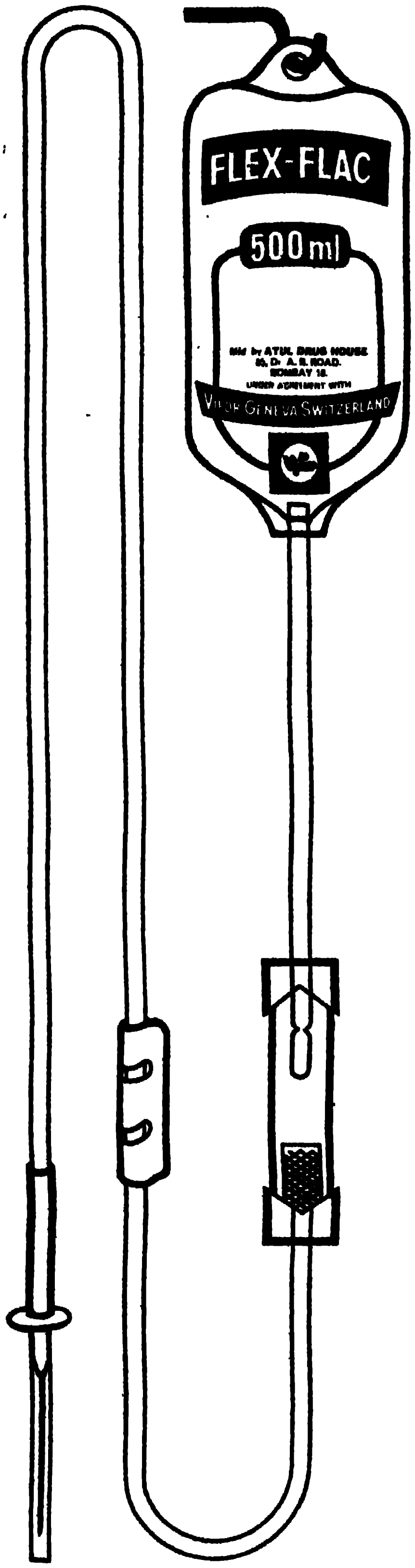

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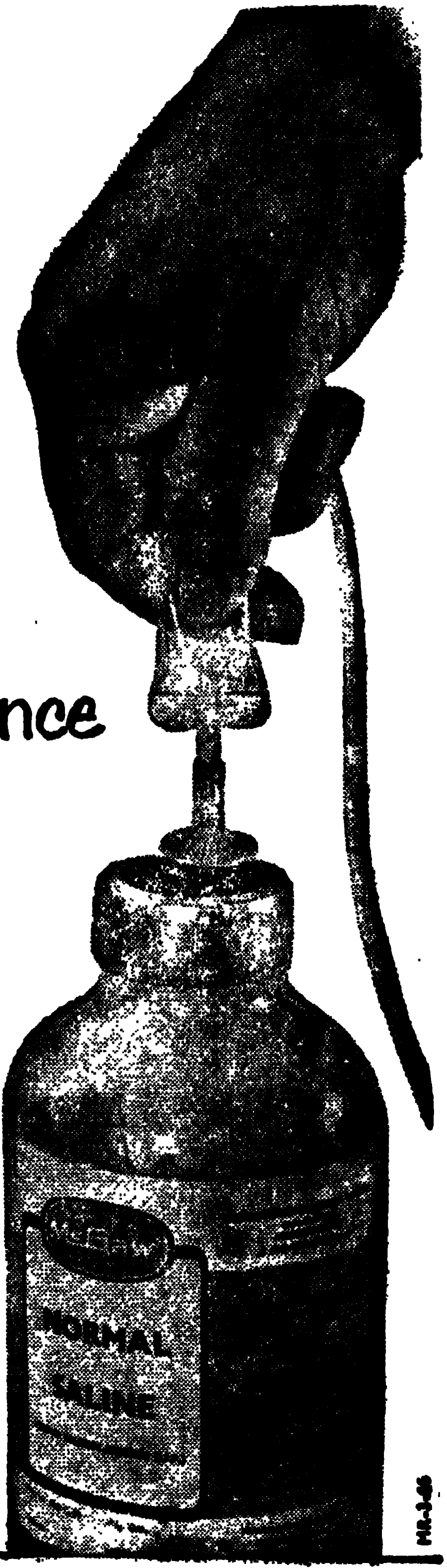

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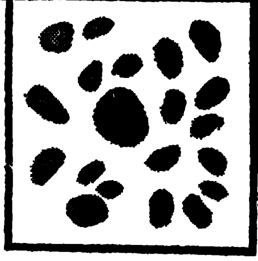

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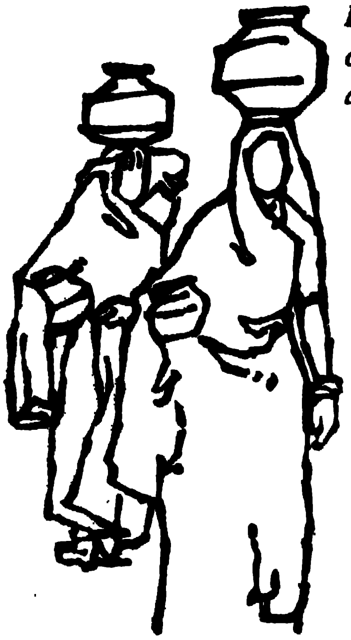

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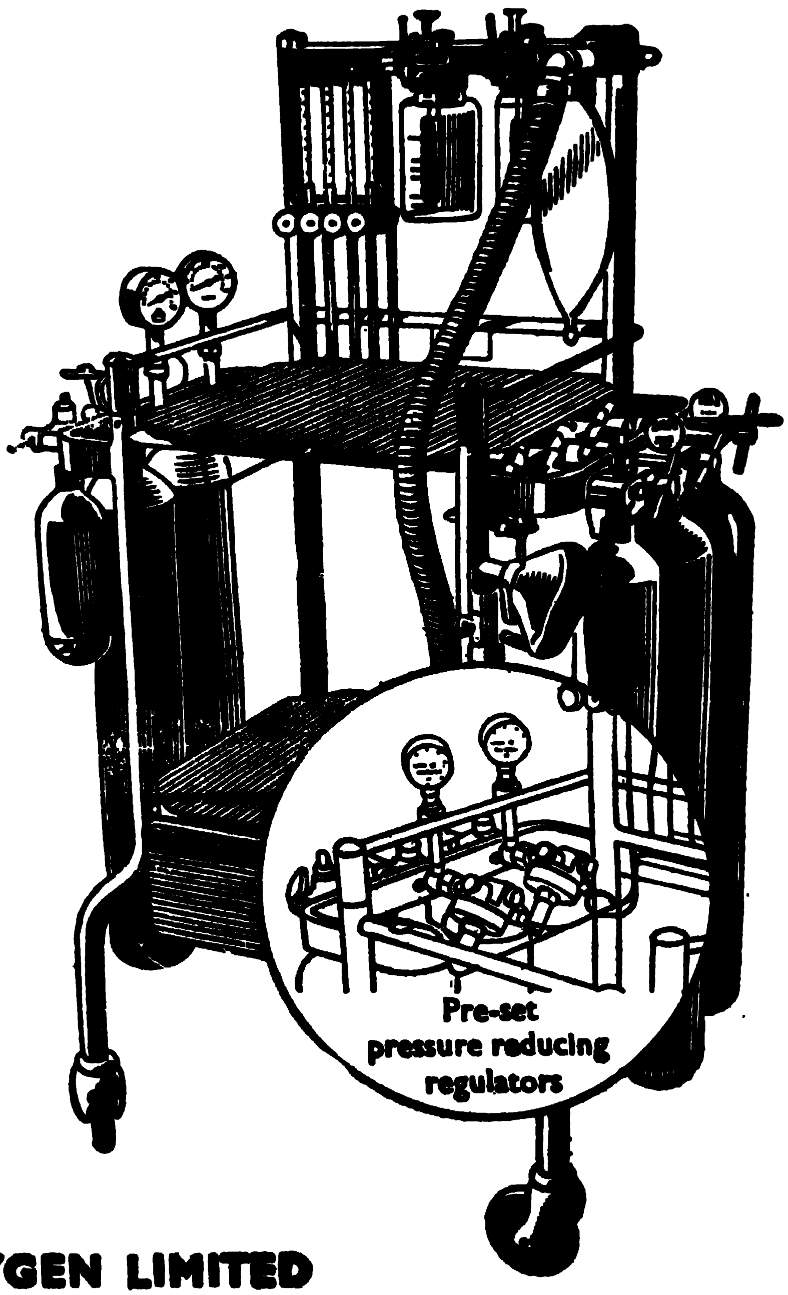

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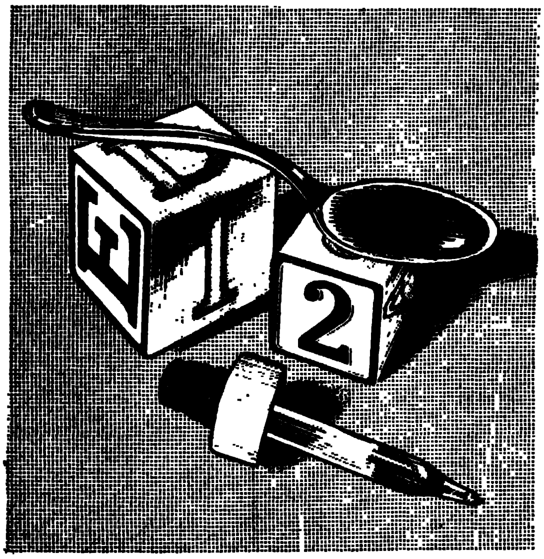

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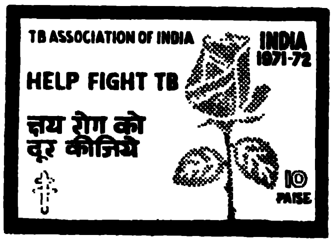

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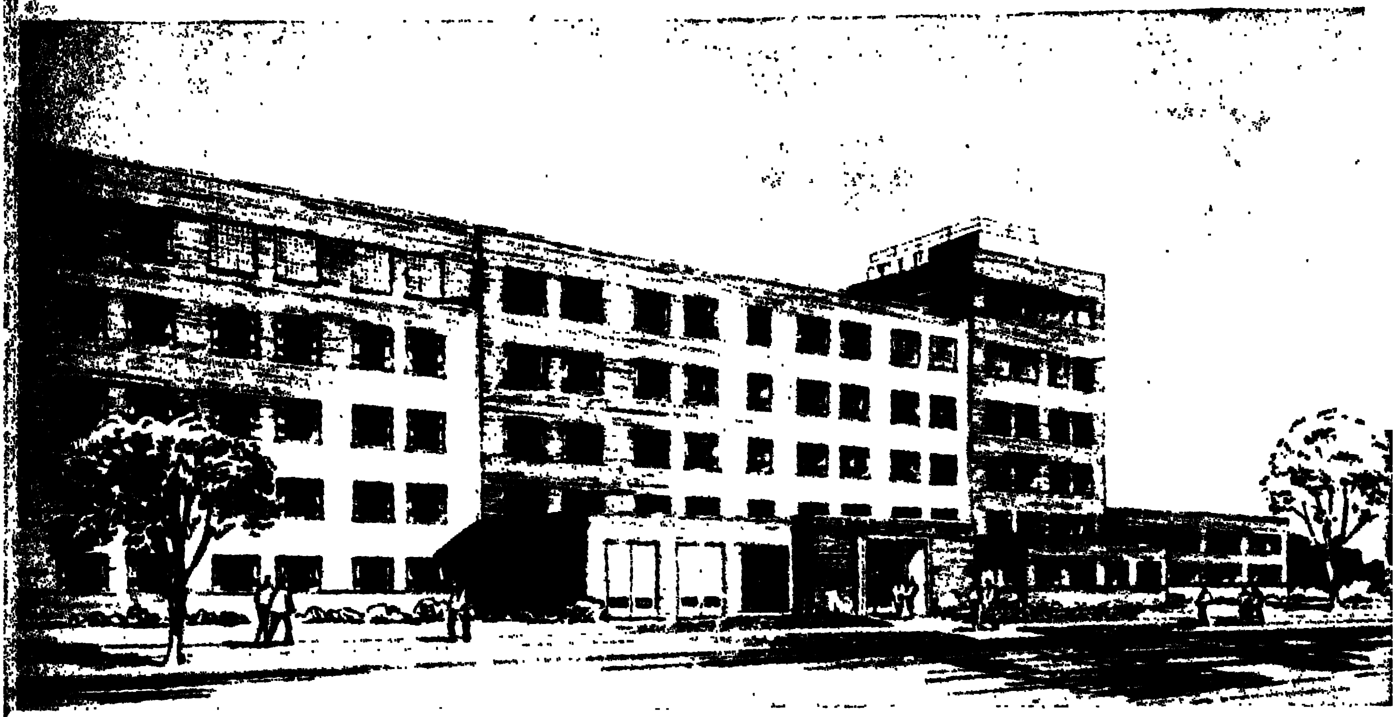

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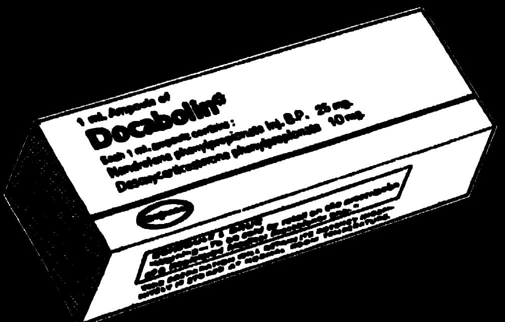
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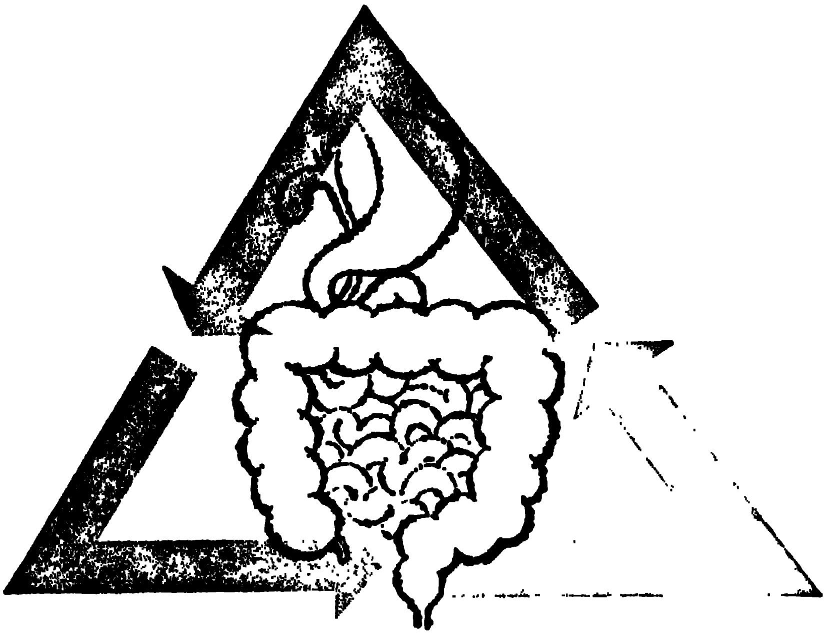

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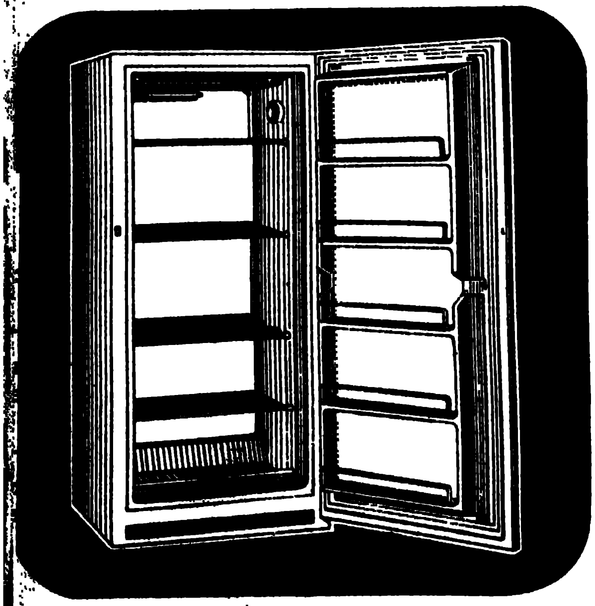

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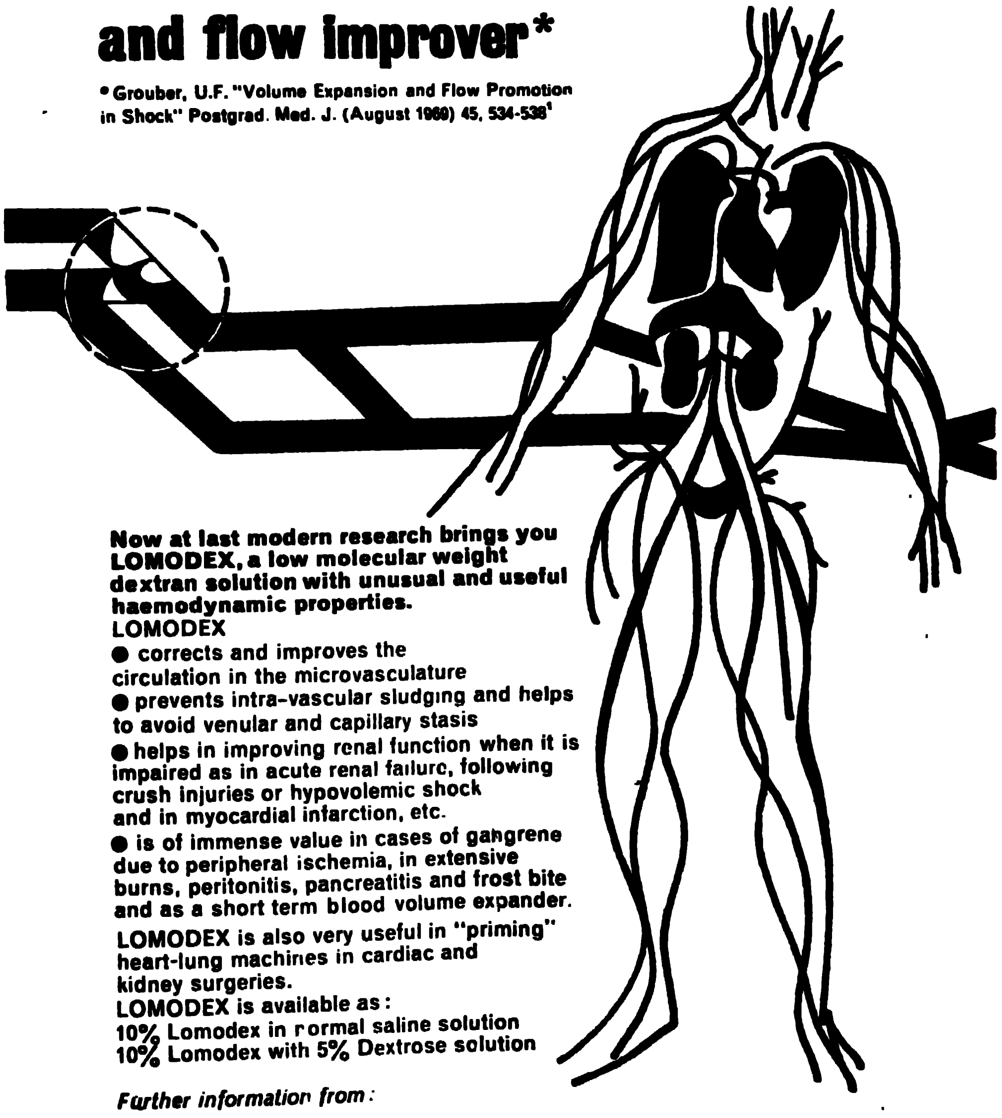

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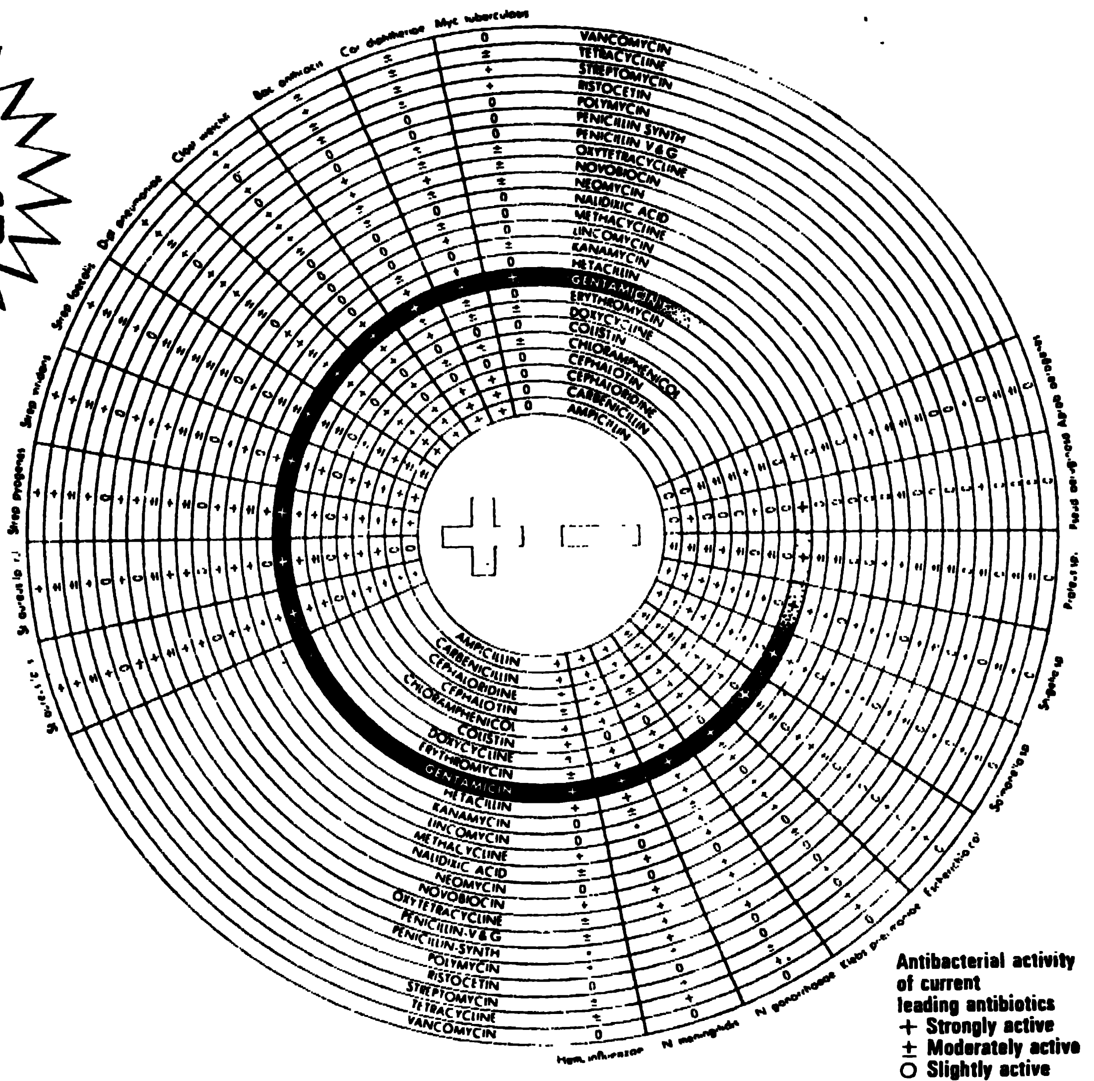

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ORIGINALS AND PAPERS

1

Clinical Study of Complete Heart Block

K. S. SHADAKSHARAPPA*, V. PARAMESHWARA BHAT**
M. RAMA SETTY***

[Received for publication March 7, 1970]

Complete heart block, temporary or permanent, is fairly common in cardiological practice. The aetiology and clinical course are variable. The mortality is high. The first warning may be a Stokes-Adams attack. The introduction of temporary and permanent cardiac pacemakers and the correlation of the idea that normal or nearly normal subsequent life is possible for such patients have necessitated a more precise identification of all factors determining the cause and course of complete heart block. This presentation is the study of 50 cases of complete heart block of varied aetiology with particular emphasis on the clinical features, nature of the underlying heart disease and the ultimate outcome of the patients.

MATERIAL AND METHOD

The cases were chosen at random for this study. The age group and the aetiology varied considerably. The prerequisite for inclusion in this study was electrocardiographic proof of complete heart block consisting of virtual regularity of atrial and ventricular activity (two independent pacemakers) with continual variation in the P-R interval. QRS complex of supraventricular or idioventricular type and higher atrial rate than the ventricular rate (70 to 80: 30 to 40). All necessary investigations were carried out to establish the precise aetiology of the block and associated cardiac disease. They were treated accordingly on the merit of their aetiology and symptomatology. Mode of appearance of the block, its duration, associated symptoms with special reference to Stokes-Adams attacks and the response to the treatment were studied carefully whenever possible.

OBSERVATIONS

The age and sex distribution in our cases are shown in Table 1. These are in general agreement

TABLE 1—SHOWING AGE AND SEX INCIDENCE

Age group (in years)		Male	Female	Total
0—10	...	1	1	2
11—20	...	1	—	1
21—30	...	5	3	8
31—40	...	4	3	7
41—50	...	8	2	10
51—60	...	10	4	14
61—70	...	4	3	7
71—76	...	1	—	1
Total No. of cases		34	16	50

Bangalore Medical College and Victoria Hospital, Bangalore

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with those of other comparable series. There were thirty-four males and sixteen females. The ratio of males : females was 2.1:1.

Aetiologically, the cases were divided into three main groups : first group in which the coronary artery disease was the major factor ; second group belonging to diseases other than coronary artery and third group in which the aetiology was undetermined.

Coronary artery disease (Group 1) alone or in combination with hypertension was by far, the most common cause. Out of 30 cases in this group acute myocardial infarction was present in 26 cases (52 per cent) and chronic myocardial infarction in 4 cases (8 per cent).

Among the 26 cases of acute myocardial infarction, 24 developed transient block and 2 permanent block. Of these 24 cases of the transient group, 10 recovered completely with disappearance of the block and returned back to their work, 8 developed Stokes-Adams seizures, of which 7 died within four days of the development of the complete heart block and the other patient recovered from the shock and the seizures with disappearance of the block and returned to clerical work, 3 cases died of cardiologic shock and another 3 died of severe cardiac failure.

Among the 4 cases of permanent block with chronic myocardial infarction 2 died after four years, the cause or mode of death being not known; 1 developed gangrene of the left leg due to thrombo-embolic phenomenon and is alive after amputation, and the fourth one is leading a normal life without any symptoms.

There were 10 cases in the non-coronary group (Group 2). Diphtheria was the cause of heart-block in 3 cases of which 1 died of circulatory failure after a week of development of the the complete heart block, 1 developed permanent block, but remained asymptomatic and in 1 case the block was transient.

Complete heart block was due to myocarditis complicating probably viral pneumonia in 1 case. The heart block appeared on the fourth day of the viral pneumonia and it lasted for four days under the cover of antibiotics and steroids.

Syphilitic infection was responsible for complete heart block in 1 case. He lived for four years after the diagnosis and treatment. In 1 case of myocardial infarction with transient complete heart block, blood and CSF were positive for VDRL test. It was not clear whether syphilis was or the co-existing coronary atherosclerosis was the aetiology.

Digitalis-induced transient atrial fibrillation with complete heart block occurred in a young female of 25 years. Both atrial fibrillation and complete heart block disappeared within two days of stopping digitalis and on oral potassium therapy.

Permanent complete heart block along with aortic stenosis was present in a young man of 20 years who had suffered from recurrent rheumatic arthritis. It was presumed that aortic stenosis and complete heart block were of rheumatic origin. He was followed up for three years during which he sufferred from angina and giddiness.

There was 1 case of ventricular septal defect with complete heart block in a young man of 26 years, who was totally asymptomatic. In another case complete heart block was associated with congenital aortic stenosis.

Among the 10 cases of undetermined aetiology (Group 3) complete heart block was probably congenital in three cases. All the three of them were asymptomatic and discovered only on routine medical examination. In seven cases no cause could be detected.

DISCUSSION

The causes of complete heart block in the present series are similar to various reports in the literature (Wright *et al.*, 1956). In the present study coronary heart disease was the cause in 60 per cent of the total cases. The mortality rate in complete heart block due to myocardial infarction has been distressingly high (Friedberg, 1966). Infarction is commonly diaphragmatic and caused by proximal thrombosis of the dominant coronary artery, rendering the a-v node ischaemic but not necrotic. Survivors spontaneously return to sinus rhythm after a few days presumably due to the patency of the distal part of the obstructed artery receiving collateral flow from other coronary arteries. Obstruction of the nodal artery itself, whether thrombotic or embolic is rare and is likely to cause sudden death or permanent block. In anterior infarction development of A-V block indicates extensive myocardial damage involving both bundle branches usually associated with a wide QRS complex. In some, the transient complete heart block was due to oedema of the bundle secondary to infarction. In the present series one of 26 cases of acute myocardial infarction transient complete heart block occurred in 24 cases and in 2 cases it was permanent. Stokes-Adams seizures were the cause of death in 7 (27 per cent) cases. If the patients recover from acute episodes of infarction, probably their death is determined by the onset of Stokes-Adams seizures. Curd *et al.* (quoted by Friedberg, *loc. cit.*) observed that survival of patients with complete heart block was directly related to the severity of the underlying disease. In the present study, one case of acute myocardial infarction had a turbulent convalescent period. This patient was in a state of circulatory shock and low cardiac output syndrome consequent to heart block. Varying degrees of heart block with spells of alternating supraventricular tachycardia of all types has been the interesting feature. Ultimately the patient recovered with restoration to sinus rhythm gradually through a stage of partial heart block. Nair and Swan (quoted by Friedberg, *loc. cit.*) have also observed that complete heart block was seen to change into changing a-v block, latent block or sinus rhythm which reverted back to complete heart block on rendering or stopping steroid treatment. In one of our cases, there was gradual progression from grade I to grade III block and reversion to sinus rhythm in the same order. It is likely that in addition to organic disturbances of the conducting tissues, there are functional changes occurring simultaneously or independently. Hence, we believe that steroid and possibly atropine therapy is particularly valuable in acute transient heart block.

The relation of Stokes-Adams seizures and survival is not clear in the literature. According to Curd *et al.* (*loc. cit.*) seizures do not significantly alter the prognosis. In the present series, experience has been that for the patients with acute infarction complicating heart block, prognosis has been poor. In these patients low cardiac output with or without Stokes-Adams seizures was the cause for the fatal end. But once the heart block has been corrected and convalescence is uneventful, the long term prognosis does not seem to differ from that of any other cases of healed infarction. However, if the heart block remains as permanent one, longevity appears to be determined by the onset of Stokes-Adams syndrome.

The prognosis with complete heart block following acute myocardial infarction also depends on the site of intrinsic pacemaker. When the pacemaker site is in the a-v node or the main bundle above its bifurcation the mortality is comparatively low, viz., 30 per cent (Friedberg *et al,* 1968) 40 per cent (McNally and Benchimol, 1968) and 33 per cent (Datey *et al.,* 1969). However, when the pacemaker is situated distal to the infarction of the bundle of His the mortality is significantly higher, viz., 78 per cent (Freidberg *et al., loc. cit.*), 75 per cent (McNally and Benchimol, *loc. cit.*) and 66 per cent (Datey *et al., loc. cit.*).

Onset of congestive cardiac failure does not seem to adversely affect the immediate prognosis. Our experience is in concurrence with the observation of Freidberg (*loc. cit.*). Evaluation of comparable series of patients treated by different methods by Gadboys *et al.,* (1968) suggests that significant improvement in the outlook of patients, with Stokes-Adams syndrome can be achieved by intracorporeal electronic pacing. In the present series want of opportunity for pacing might have caused a higher mortality.

Diphtheretic myocarditis is another important cause of complete heart block, and usually these cases end fatally. In our study there were three cases, one of them died and another developed established heart block and remained asymptomatic and in the third the block was transient. Though complete heart block is observed in a vast number of other infections, in our series there was one case of transient and asymptomatic complete heart block probably due to viral pneumonia with myocarditis.

Syphilis is an uncommon cause of permanent heart block. The conduction defect may be due to a gumma infiltrating the bundle of His or both bundle branches, to a gummatous myocarditis extending from the oarta or to coronary insufficiency caused by syphilitic aortitis with narrowing of the coronary ostia. Syphilis was probably responsible in one of our cases, who lived for four years after the treatment. In another case it was doubtful whether the syphilitic coronary artery disease was responsible for the block.

Digitalis may induce heart block of all degrees. In one of our cases digitalis was responsible for atrial fibrillation with complete heart block.

Rheumatic fever commonly produces prolongation of the P-R interval, though severe grade of heart block can also occur. Sometimes calcific aortic stenosis which is rheumatic may produce heart block from extension of calcific process from the aortic ring to the junctional conduction tissue in the septum (Wood, 1968). In our series complete heart block was present along with aortic stenosis probably of rheumatic origin in one case.

Congenital heart block occurs only in 5 per cent of cases (Campbell, 1944). It results from a defect in the course or development of the junctional conduction tissues, and may be associated with congenital cardiac lesions, chiefly ventricular septal defects but also various other lesions. Congenital heart block can also occur in patients without any apparent disease and it may also be familial. Complete heart block was present along with ventricular septal defect in 1 case and with congenital aortic stenosis in another. It was probably congenital in 3 other cases.

Symptoms referable to the A-V block itself were present in approximately 50 per cent of patients. Of these about 25 per cent exhibited the classic syncopal or convulsive attacks while the remainder experienced milder symptoms of occasional giddiness or vertigo.

SUMMARY

Fifty cases of complete heart block of varied aetiology were studied at random regarding the causation, clinical symptoms, complication and prognosis. This condition occurs more often in the older age groups and more often in men with the sex ratio of 2.1:1. Coronary artery disease was alone the cause in 60 per cent of cases. Mortality was high in the coronary group. In the coronary group, majority of cases with Stokes-Adam seizure invariably succumbed to death. In the non-coronary group Stokes-Adams seizures were uncommon. Complete heart block of congenital and unknown origin relatively lived long without any complications.

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2

A Study of Suicide in Delhi State†

KIRPAL SINGH*, N. R. JAIN**

B. M. P. KHULLAR***

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Suicide or self immolation has been the concern of mankind all through its recorded history. Self immolation as a religious and social act has been practised in ancient societies, notably amongst Indians, Romans and Japanese. As a form of protest it has been practised even recently by the Buddhist monks in Vietnam. Psychoanalytic theory sees both suicide and homicide as extreme forms of aggression, the one directed against the self, the other directed against another person. Suicide is seen as a function of an excessively strict and punishing "super ego" or internalised restraining mechanism of the personality which prohibits the outward expression of aggression. It may, however, be pointed out that suicide is more frequent than murder and as a rule, the victims of suicide are generally more desirable members of society than victims of homicide (Menninger, 1942). It is in this context that the study of suicidal acts with a view to suggesting ways and means of their prevention becomes important. Moreover, the problems that a suicide victim leaves behind for his family and friends in particular and the society in general make it all the more important to view the suicidal acts as a social problem needing attention.

In spite of the fact that self preservation is a basic instinct and the primary urge in every human being is to live, suicidal ideas are very common and some authorities believe that "there is no person of normal mentality to whom such an idea has not occurred" (Stengel, 1959). The study of suicide illustrates that human action, however personal, is also interaction with other people, and that the individual cannot be understood in isolation from his social matrix" (Stengel, 1964). It is, therefore, fruitful to carry out separate and independent studies of the problem in different countries and cultures. Suicide has been a subject of continuous study in most of the Western countries but there have been very few studies on the subject in India. The only notable studies have been carried out in South India by Satyavathi and Murti Rao (1961, 62), and by Ganpathi and Venkoba Rao (1966).

The magnitude of the problem of suicides may be judged from published statistics. In recent years, approximately 5,500 people have died through suicide in Great Britain annually and about 25,000 in the United States.

These figures constitute a suicide rate of ten to eleven per 100,000 of the general population. In Japan, the total number of suicides was reported to be 22,107 in 1956. This amounts to a suicide rate of 25·2 per 100,000. Suicidal attempts have been estimated to be six to eight times as numerous as suicides (Farberow and Schneidman, 1961; Stengel, 1964).

The incidence of suicide varies from country to country and in the same country it varies from time to time. Of the countries and regions indicated in a World Health Organisation publication, West Berlin showed the highest suicide rate of 34·5 per 100,000 in 1951 rising to 37 per 100,000 in 1961.

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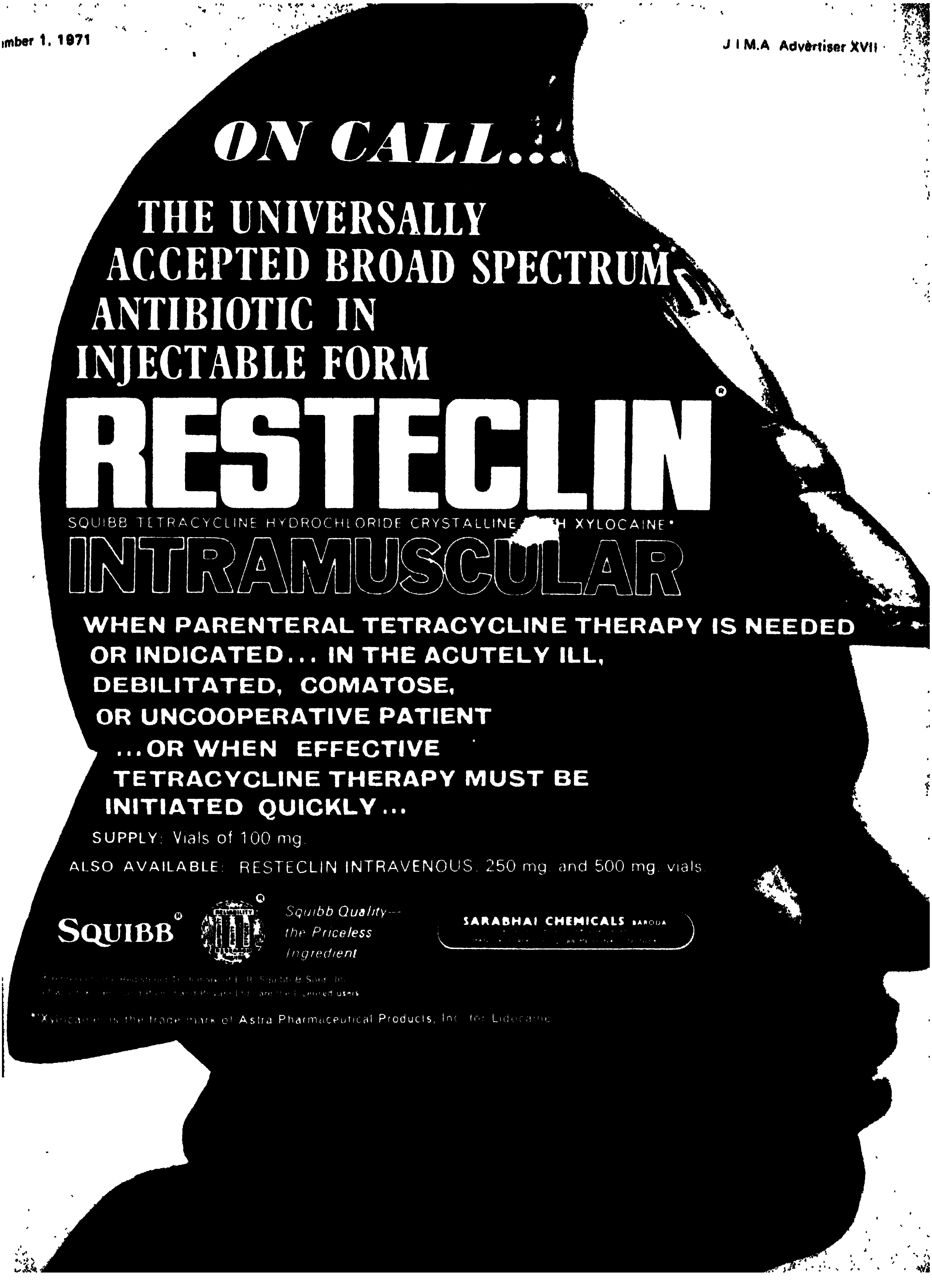

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At the other extreme was Egypt with a suicide rate of 0·7 in 1951 and 0·1 per 100,000 in 1958.

As there have been very few regular studies of the problem of suicide in India it was decided to take up such a study in Delhi, which besides being the capital of India, covers 126·1 square miles of urban, and 446·9 square miles of rural area. The latter consists of about 300 villages.

MATERIAL AND METHOD

As the study was meant to be only a preliminary one, the coverage was restricted to all cases of successful suicide reported during the period of one year from 1st April, 1967 to 31st March, 1968. An exhaustive interview schedule, based on the relevant findings reported in the literature, was prepared to elicit information from next of kin, friends, and employers about the suicide cases. The schedule was divided into 9 parts. The first part consisted of 'personal particulars' like name, age, caste, occupation, details of the incident and previous attempts if any; the second covered the 'educational history'; the third part gave details of the 'economic history' including particulars of the jobs held, periods of unemployment, details of debts, if any; the fourth part gave details about the 'physical and mental health' of the deceased; the fifth part was concerned with the 'marital history' where applicable, giving details about marital status, adjustment with spouse, love crises if any, and number of children and other dependents; the sixth part was concerned with 'socio-cultural and moral history' covering residential particulars, interpersonal relations, friendships, extracurricular activities, religious practices, regard for elders and teachers, and details of criminal records, if any. The seventh part was devoted to the 'family and personal history' including information about parents/step-parents, bereavements in the family, interpersonal relations with various members of the family and truancy from home; the eighth part was devoted to a 'personality appraisal' of the deceased giving the social, emotional and moral aspects. This was based on clinical impression as a result of a careful assessment of the deceased's history as given by the interviewees. The ninth part referred to the 'precipitating causes' in which were also included particulars about the mood of the deceased prior to committing suicide, prior suspicion by others about the deceased's suicidal intent, action taken, if any, to avert the suicide and the opinion of the interviewees as to whether the suicide could have been averted.

The interviews were conducted by a full-time social worker employed for the study. Each case, during the process of data collection, was periodically discussed by the members of the study team in order to point out the social worker areas where further probing was needed. The first information about each case was obtained from the daily crime report obtained through the kind help of the Inspector General of Police, Delhi. A total of 153 cases of suspected suicide were reported during the period under review. Out of these, 32 were, after investigation, declared as natural deaths; 18 cases (15 males and 3 females) could not be identified, and in 3 cases the deceased had no relations/business associates in Delhi. The data obtained on the remaining 87 cases were subjected to a detailed statistical analysis and some 40 tables prepared, only a few of which will be presented in this paper. During the same period 17 cases of attempted suicide were reported in the daily crime reports.

ANALYSIS AND RESULTS

Suicide rate—The total population of Delhi as per 1961 census figures obtained from the office of the Superintendent of Census Operations, Delhi Administration, was 2,658,612 (1,489,378 males and 1,169,234 females). For the calculation of suicide rates, however, projections of these figures were obtained to estimate the population figures as on 1-10-1967, being mid-point of the period covered by this study. The population of Delhi as on 1-10-1967, was estimated to be 3,687,200 (2,065,600 males and 1,621,600 females). For detailed rates by age, rural/urban areas, religion and education also proportionate projections were obtained. In this, help was sought of the office of the Registrar General of Censuses, India. Taking the total suicides as 153 minus 32 found to be accidental deaths and 13 found to be natural deaths, i.e., 108 (57 males and 51 females), the suicide rate per 100,000 comes to 2.93. For the males and females separately the suicide rate comes to 2.76 and 3.15 respectively. Analysis in the succeeding paragraphs is, however, based on the 87 identified cases only.

Age—It is seen that amongst the reported suicides 46·0 per cent were males and 54·0 per cent females. The average age of the males was 30.75 years and that of females 28.27 years. The peak periods were 20-29 and 45-59 years for males and 20-29 years for females (Table 1).

Religion — Table 2 shows the suicide rates amongst the Sikhs was the highest (2.83/100,000) and that amongst the Muslims was the lowest (0.46/100,000). These differences were statistically significant at 5 per cent level.

Caste—Among the *kshatriyas* male suicide was more common than female and the reverse was the case amongst the *brahmins*.

Locale (*rural/urban*)—There was a greater number of suicides from urban areas (57·47 per cent, Table 3). However, when suicide rates,

TABLE 1—SHOWING SUICIDE RATES/100,000

Age (years)	Sex		Total
	Male	Female	
10—19 ...	1·20	2·35	1·72
20—29 ...	4·41	7·00	5·53
30—44 ...	1·94	4·10	2·79
45—59 ...	4·36	4·19	4·29
60 and above ...	1·16	1·51	1·31

In Table 1 the age groups have been made to correspond with the census data.

TABLE 2—SHOWING DISTRIBUTION OF SUICIDE BY RELIGION

Religion	Male	Female	Total	Suicide Rate/100,000
Hindu	34 (85·00)	43 (91·49)	77 (88·50)	2·48
Muslim	1 (2·50)	—	1 (1·15)	·46
Christian	1 (2·50)	—	1 (1·15)	2·47
Sikh	4 (10·00)	4 (8·51)	8 (9·20)	2·83
	40 (100·00)	47 (100·00)	87 (100·00)	2·36

100,000 were computed, it was found that the suicide rate was significantly higher in rural areas than in urban areas, being 8.92/100,000 in rual areas and 1.53/100,000 in urban areas.

Income—Maximum number came from the income bracket of below Rs. 250/- per month, i.e., lowest socio-economic group (65.00 per cent in males and 70.21 per cent in females).

Mode of suicide—It was found that the most frequently adopted methods were hanging (35.00 per cent) and throwing oneself in front of a train (20.00 per cent) in the case of males, and drowning (36.17 per cent) and burning (31.91 per cent) in the case of females. The least common method was shooting (2.30 per cent) of the total sample.

Education—It was observed that 45.98 per cent of the cases were illiterate (Table 4). The proportion of illiterate persons was greater amongst females (63·83 per cent) than amongst males (25·00 per cent). Amongst the males, the educational level of majority of the cases (75.00 per cent) was matriculation or below. When compared with the population of Delhi, it was found that suicide rate (per 100,000) was higher amongst matriculates and above, than amongst illiterates; below matriculation category came in between the two.

Physical and mental health—It was seen that a larger proportion of the males was suffering from physical deformities and chronic sickness (5.00 per cent and 32.50 per cent respectively) than the females (14.90 per cent chronically sick). As far as the mental health was concerned, the incidence of mental sickness (Table 5) was greater amongst the females than amongst the males, 29.79 per cent of the females were mentally sick, against 17.50 per cent of the males. The probable clinical diagnoses in those suffering from mental diseases were:

TABLE 3—SHOWING DISTRIBUTION OF SUICIDE BY LOCALE (RURAL/URBAN)

Place	Male	Female	Total	Suicide rate/100,000		
				M	F	T
Rural ...	15 (37·50)	22 (46·81)	37 (42·53)	6·68	11·56	8·92
Urban ...	25 (62·50)	25 (53·19)	50 (57·47)	1·36	1·75	1·53
Total ...	40 (100·000)	47 (100·000)	87 (100·000)	1·94	2·90	2·36

Note: Figures within brackets indicate the percentages of column totals.

TABLE 4—SHOWING DISTRIBUTION OF SUICIDE BY EDUCATION

Education	Male	Female	Total	Suicide rate/100,000		
				M	F	T
Illiterate ...	10 (25·00)	30 (63·83)	40 (45·98)	·71	2·28	1·97
Below matric ...	11 (27·50)	9 (19·15)	20 (22·99)	3·80	4·80	4·20
Matric ...	9 (22·50)	6 (12·77)	15 (17·24)	5·21*	6·88*	5·61*
FA/BA ...	5 (12·50)	2 (4·26)	7 (8·05)			
MA ...	2 (5·00)	—	2 (2·30)			
Technical ...	2 (5·00)	—	2 (2·30)			
Medical ...	1 (2·50)	—	1 (1·15)			
Total ...	40 (100·00)	47 (100·00)	87 (100·00)	1·94	2·90	2·36

*=Matric and above.

TABLE 5—SHOWING DISTRIBUTION OF SUICIDE BY MENTAL ILL HEALTH

Mental health	Male	Female	Total
Overt mental illness	7 (17·50)	14 (29·79)	21 (24·14)
No overt mental illness	33 (82·50)	33 (70·21)	66 (75·86)
Total	40 (100·00)	47 (100·00)	87 (100·00)

7 cases of functional psychoses (schizophrenia 4; endogenous depression 2, and involutional depression 1), 2 cases of organic psychosis, 10 cases of psychoneuroses and 2 cases of epilepsy. There was no conclusive evidence to support a diagnosis of psychopathic or sociopathic personality in any of these cases.

Marital status—73.56 per cent of the suicide cases were married and the proportion of married persons was higher amongst females than amongst males (Table 6). There were no cases of divorce or separation.

TABLE 6—SHOWING DISTRIBUTION OF SUICIDE BY MARITAL STATUS

Marital status	Male	Female	Total
Married ...	23 (57·50)	41 (87·23)	64 (73·56)
Single ...	16 (40·00)	4 (8·51)	20 (22·99)
Engaged ...	1 (2·50)	–	1 (1·15)
Widow ...	—	2 (4·26)	2 (2·30)
Total ...	40 (100·00)	47 (100·00)	87 (100·00)

Note: Figures within brackets indicate percentages of the column totals.

Relations with spouse (Table 7)—When the first two categories are combined it is seen that 40.23 per cent had satisfactory relationship. It was found that 24 cases of this series (27.58 per cent of the total) were not adjusted in their marital relations. This constitutes 37.5 per cent of the married persons in the sample (64).

TABLE 7—SHOWING DISTRIBUTION OF SUICIDE BY ADEQUACY OF RELATION WITH SPOUSE

Adjustment with spouse	Male	Female	Total
Well adjusted ...	3 (7·50)	5 (10·64)	8 (9·20)
Moderately adjusted	11 (27·50)	16 (34·04)	27 (31·03)
Not adjusted ...	6 (15·00)	18 (38·30)	24 (27·58)
Not applicable ...	17 (42·50)	5 (10·64)	22 (25·29)
Not available ...	3 (7·50)	3 (6·38)	6 (6·90)
Total ...	40 (100·00)	47 (100·00)	87 (100·00)

Participation in cultural groups (Table 8)—It was seen that most of the persons did take at least some interest in cultural groups—87.50 per cent of males and 50.22 per cent of females or 78.16 per cent of the total. On the other hand, most of the persons had never taken part in political groups (95.40 per cent).

TABLE 8—SHOWING DISTRIBUTION BY PARTICIPATION IN CULTURAL GROUPS

Participation in cultural groups	Male	Female	Total
Often ...	14 (35·00)	6 (12·77)	20 (22·99)
Sometimes ...	21 (52·50)	27 (37·45)	48 (55·17)
Never ...	4 (10·00)	11 (23·40)	15 (17·24)
Not available ...	1 (2·50)	3 (6·39)	4 (4·60)
Total ...	40 (100·00)	47 (100·00)	87 (100·00)

Religious practice and worship (Table 9)—Most of the cases were practising followers of a religion, 80 per cent of the males and 65.96 per cent of the females. There were only two persons who were very religious and 18 (20·69 per cent) who had never worshipped.

TABLE 9—SHOWING RELIGIOUS PRACTICE

Worship	Male	Female	Total
Very frequently	1 (2·50)	1 (2·13)	2 (2·30)
Often ...	5 (12·50)	3 (6·38)	8 (9·20)
Sometimes ...	26 (65·00)	27 (57·45)	53 (60·92)
Never ...	7 (17·50)	11 (23·40)	18 (20·69)
Not available ...	1 (2·50)	5 (10·64)	6 (6·90)
Total ...	40 (100·00)	47 (100·00)	87 (100·00)

Occupation—The male cases came more frequently from office workers (20 per cent), technicians (20 per cent) and students (20 per cent), and most of the females (87.2 per cent) were housewives.

Criminal record—7.50 per cent of the males and 2.13 per cent of the females had been guilty of a criminal offence at one time or another.

Relations with parents and with children—It was seen that adjustment with parents, in-laws and others was not a major problem in the sample. Only 3.45 per cent (all males) lacked adjustment with parents, 8.05 per cent (all females) with in-laws and 5.75 per cent with others. As far as relations with the children were concerned, 12.05 per cent of the males and 31.91 per cent of the females or 22.99 per cent of the total lacked adjustment. When these percentages are calculated for the married persons only, the figures are 25.00 per cent for males, and 39·47 per cent for females (Tables 10, 11).

TABLE 10—SHOWING DISTRIBUTION OF SUICIDE BY RELATIONS WITH PARENTS

Relations	Sex Male	Sex Female	Total
Well adjusted ...	34 (85·00)	40 (85·11)	74 (85·06)
Moderately adjusted	1 (2·50)	—	1 (1·15)
Strained ...	3 (7·50)		3 (3·45)
Not available ...	2 (5·00)	7 (4·89)	9 (10·34)
Total ...	40 (100·00)	47 (100·00)	87 (100·00)

TABLE 11—SHOWING DISTRIBUTION OF SUICIDE BY RELATIONS WITH CHILDREN

Relation with children	Sex Male	Sex Female	Total
Well adjusted ...	2 (5·00)	2 (4·26)	4 (4·60)
Moderately adjusted	13 (32·50)	21 (44·68)	34 (39·08)
Not adjusted ...	5 (12·50)	15 (31·91)	20 (22·99)
Not applicable ...	20 (50·00)	9 (19·15)	29 (33·33)
Total ...	40 (100·00)	47 (100·00)	87 (100·00)

Personality appraisal—Only 20.00 per cent of the males and 23.40 per cent of the females had shown complete lack of sociability. 30·00 per cent of the males and 40.43 per cent of the females were moderately sociable. 22.50 per cent of the males and 36.17 per cent of the females were reported to have had frequent swings of mood. As far as emotional stability was concerned, 30.00 per cent of the males and 23.40 per cent of the females had shown signs of emotional instability, 77.5 per cent of the males and 70.21 per cent of the females were reported to be very conscientious persons. Only 5.00 per cent of the males and 2.13 per cent of the females lacked conscientiousness.

Predisposing/precipitating causes — A clinical analysis of the cases in retrospect was carried out to pinpoint the predisposing and precipitating causes for the suicides. It was seen that most frequent predisposing causes were marital discord (28.74 per cent), mental illness (18.39 per cent) and physical illness (17.24 per cent), familial discord (9.20 per cent). It is seen from Table 12 that most frequent precipitating causes were physical and mental illness (32.18 per cent), ill treatment (13.79 per cent), marital discord (9.20 per cent) and fear of rejection by spouse/lover (12.64 per cent). The last three causes were more frequent amongst females than males.

Suicide pacts—There was only one case of a suicide pact in our sample. This involved frustrated love wherein the man misappropriated money, got married and then the couple committed suicide by taking poison. No specific reasons were, however, given in the suicide note.

TABLE 12—SHOWING PRECIPITATING CAUSES LEADING TO SUICIDE

Precipitating causes	Frequency Male	Frequency Female	Frequency Total
Chronicity and severity of disease ...	12 (30·00)	16 (34·04)	28 (32·18)
Ill treatment ...	4 (10·00)	8 (17·02)	12 (13·79)
Chronicity and severity of marital discord ...	1 (2·50)	7 (14·89)	8 (9·20)
Fear of rejection/rejection by spouse/lover ...	3 (7·50)	8 (17·02)	11 (12·64)
Fear of failure in examination ...	4 (10·00)	—	4 (4·60)
Fear of punishment	4 (10·00)	·	4 (4·60)
Parental coercion ...	2 (5·00)	..	2 (2·30)
Sense of humiliation	3 (7·50)	2 (4·26)	5 (5·75)
Loss/separation from lover/husband ...	—	3 (6·38)	3 (3·45)
Chronicity and severity of economic stress ...	4 (10·00)	—	4 (4·60)
Loss/loss of hope of having a child ...	1 (2·50)	2 (4·26)	3 (3·45)
Sense of guilt ...	1 (2·50)	—	1 (1·15)
Not known ...	1 (2·50)	..	1 (1·15)
Not available ...	—	1 (2·13)	1 (1·15)
Total ...	40 (100·00)	47 (100·00)	87 (100·00)

Suicide notes—There were 15 cases (12 males and 3 females) in which suicide notes were left by the deceased. The contents of these notes pertained mainly to the reasons for the suicide. The reasons given were : family discord, marital discord, physical and mental illness, failure in examination, protest against charges of infidelity and frustration in love. In three cases, no reasons were given and the purpose of the notes seemed to be to absolve others of the responsibility for the act.

DISCUSSION AND CONCLUSIONS

No single cause or group of causes can account for the level of suicide rates in any geographical area, many factors being at work at the same time. Suicide rates, for example, have been correlated with the following factors : male sex, increasing age, widowhood, single and divorced states, childlessness, high density of population, residence in big towns, a high standard of living, economic crisis, alcohol consumption, history of broken home in childhood, mental disorder and physical illness.

Age—In the United States it was found that suicide occurred in practically all age groups with a peak level in the mid-years of life (Hirsh, 1959). In Japan, however, the pattern indicated bimodal peaks at ages 20-25 and 65 and above (Iga, 1961). In the present series the peak periods were 20-29 and 45-49 for males and 20-29 for the females.

Physical and mental ill health—A study of 325 Coroner's inquests for suicidal deaths in Bristol (1957-61) showed that twenty per cent had evidence of physical illness, about one-third had history of a psychiatric illness and 16 per cent had made a previous suicidal attempt (Seager and Flood, 1965). In the present series 5 per cent of the males had physical deformities and 32.5 per cent had suffered from chronic illness. In the females the corresponding figures were 2.3 per cent and 22.9 per cent respectively. 17.5 per cent of the males and 29.79 per cent of the females had suffered from an overt psychiatric illness.

Attempted suicides—These were not considered suitable for this study as attempted suicide is still a cognisable offence in India and as such very many attempts which do not result in serious injuries are never reported to the police. As stated earlier, during the period under review only 17 cases of attempted suicide were reported in the police records. This is obviously due to gross under-reporting.

Previous attempts—There were only 4 cases in the present series (4.76 per cent) with a previous history of attempted suicide.

Sociological factors—Thomas (1927), Dublin and Bunzel (1933), Ogburn and Thomas (1942) and Henry (1950), have demonstrated that suicides tend to increase during economic depression ; Durkheim (1897), suggested that suicides varied with the strength of the relational system in which the person is enmeshed, individuals who were isolated from meaningful relationships with their fellow men being high risks.

The present study does not bear out some of the important findings in other studies—particularly with regard to incidence, sex ratio and rural/urban distribution. It was found in our study that in Delhi during the period under review :

(a) The suicide rate was 2.93 per 100,000 as compared with 10 to 11 per 100,000 in Western countries and it was higher amongst females (3.15) than males (2.76). This is the reverse of the pattern in Western countries but is similar to Japan where also the female suicides are more frequent than amongst males (Iga, *loc. cit.*).

(b) Suicide rate was highest amongst the Sikhs. Further analysis was done to see whether this high rate could be attributed to the effect of some other variables such as religious practice or male-female ratio in this community. The analysis showed that the relatively high incidence amongst the Sikhs could not be ascribed to such other variables. It may, however, be mentioned that a vast majority of the Sikhs in Delhi are migrants from West Pakistan and the proportion of migrants in this community is likely to be larger than in any other religious group. This may be a factor responsible or greater stress and strain particularly in the lower socio-economic stratum of this community (i.e., with an income of less than Rs. 250/- per month), where suicides are most frequent.

(c) Caste and sex-wise distribution revealed that the suicide rate was higher among *kshatriya* males and *brahmin* females than amongst *kshatriya* females and *brahmin* males respectively. We believe this may be due to the *brahmin* housewives being subjected to a stricter discipline than their *kshatriya* counterparts.

(d) Suicide rate was higher in rural areas than urban areas. This finding does not bear out studies in Western countries but is in conformity with findings in Japan (Iga, *loc. cit.*). The villages near a metropolitan city like Delhi are, however, not truly representative of the Indian villages in general. The people living in these villages have very few advantages of the village life but nearly all the disadvantages of being close to a city e.g., paucity of accommodation and overcrowding. Factors such as the joint family system, which are known to have some positive role in the promotion of mental health by providing mutual emotional support do not operate fully in such villages. The menfolk have to commute to and from the city daily by public transport or on bicycles to earn their living, and, because of the distances, they have to leave their homes very early in the morning and come back late at night. Both the males and females are, thus, subjected to greater stress and strain than their counterparts either living in the villages situated in the interior of the country or people living in the city itself. it should also be remembered that the majority of the population of the rural areas within greater Delhi belong to the lowest socio-economic group i.e., with a monthly income of below Rs. 250/-. All these factors appear to contribute to a higher suicide rate among both the male and female population of this rural area.

(e) Most common methods are hanging, throwing onself in front of a train and burning.

(f) Suicide rate per 100,000 was significantly higher for those who were educated up to matriculation and above, both males and females (5.21 and 6.88 respectively) ; next came those with below Matric education (3.8 and 4.8 respectively for males and females). The suicide rate was the lowest for the illiterate persons.

(g) Physical and mental ill health was a significant problem in this group, physical ill health amongst males and mental illness amongst females.

(h) Contrary to the studies in Western countries, majority of the cases (73.56 per cent) were married and as a result, marital discord was a significant factor leading to the suicides.

(i) Participation in cultural and religious groups was normal in our series. There were, however, very few cases interested in political groups.

(j) Lack of regard for elders, antisocial habits and criminal record were present in only a few of the cases. On the contrary, most of the individuals were moderately religious and were reported to be very conscientious persons.

(k) Relations with parents, in-laws and others were not a major problem, while those with children were of some consequence. Strained relations between parents and children were of greater significance and strain to the parents.

(l) Amongst the predisposing causes, the most important were : marital discord, physical and mental illness and familial discord. Prominent amongst precipitating factors were physical and mental illness (28 cases), ill treatment by husband (6 cases), by father (4 cases) and by in-laws (2 cases) ; marital discord (8 cases).

(m) It was seen also that 11 cases were adolescents (8 males and 3 females) and the important causes for suicide in these cases were familial discord (ill treatment by father) and failure in examinations.

PREVENTION

The following suggestions with regard to prevention arise out of the study :

(a) As a first step towards the tackling of the problem of suicide, it is imperative that attempted suicide is not treated as a crime and gets a psychiatric consultation.

(b) Physical and mental ill health was an important predisposing cause in our series. It is well known that people suffering from a mental disease are more prone to attempt suicide. Of all psychiatric conditions depression is the most important cause leading to suicide. All cases of depression should be considered as potentially suicidal and should be given special attention. But a majority of cases of depressive reaction, many of whom masquerade under the garb of physical complaints, seek treatment by general practitioners. Unfortunately, however, many such practitioners do not have a correct orientation in psychiatric conditions. It is, therefore, absolutely essential that short refresher (or orientation) courses in psychiatry should be arranged periodically for general practitioners.

(c) The existing psychiatric facilities in the Metropolitan area of Delhi are overworked and psychiatrists employed there are unable to devote sufficient time to individal patients. Many more psychiatric clinics should be made available and one such clinic should work round the clock and provide prompt psychiatric care to all types of psychiatric emergencies including attempted and threatened suicides, cases of depression and people in emotional crises. Such crises-oriented 24-hour emergency service in the urban areas is also recommended by Rensik (1969).

(d) A higher rate of suicide in the females (85.11 per cent of whom were housewives), precipitated by causes such as marital discord and mental and physical illness, calls for special mental health promotion measures for the fair sex. It would seem advisable to provide recreational clubs for women on a zonal basis, each such club besides having facilities for indoor games and hobbies should have the services of a trained counsellor available at least once a week when she should have a discussion with the members on some everyday problem, after which she could give a brief counselling session to individual members seeking interviews with her. It is considered that the verbalisation of their grievance to a sympathetic listener would by itself be therapeutic. During individual sessions she may come across some cases where intervention and assistance by Social Welfare Department would be necessary and they could be referred to them. Others needing expert psychiatric advice could be dealt with accordingly.

(e) To add to our knowledge, further intensive studies should be sponsored in Delhi and other metropolitan cities as well as in some rural areas.

SUMMARY

This paper presents a study of successful suicides in Delhi State during 1-4-67 to 31-3-68.

An exhaustive interview schedule was prepared to elicit from the next of kin/friends/employers, information about the suicide cases. It was found that the suicide rate in Delhi worked out to 2.93 per 100,000 and the rate was higher for females than males, being 3.15 and 2.76 respectively. Religion and caste-wise comparisons showed that suicide rate was highest amongst Sikhs and that the suicide rate was higher among *kshatriya* males and *brahmin* females than their counterparts of the opposite sex. 20 per cent of the male suicides were office workers and 87.23 per cent of the female suicides were housewives. 67.82 per cent belonged to the monthly income bracket of less than Rs. 250/-. Suicide rate was higher in rural areas than uban areas. Most

common modes of suicide were hanging, throwing oneself in front of a train, and burning. Amongst the pedisposing causes, the most important were : marital discord, physical and mental illness and familial discord. Prominent amongst precipitating factors were physical and mental illness, ill treatment by husband/father/in-laws, and marital discord. In 12.64 per cent cases, no predisposing cause was discovererd. It was found that the individuals who committed suicide were not conspicuous in any way. They were described as reasonably sociable, very conscientious and moderately religious and generally free from antisocial trends. They were reported to be lacking in warm friendships.

It has been recommended that as a first step towards suicide prevention,attempted suicides should no longer be treated as a cognisable offence and that cases of attempted or threatened suicide should have prompt psychiatic care. Other recommendations pertain to setting up of zonal recreational clubs for housewives; psychiatric orientation for general practitioners and provision of more psychiatric clinics, one of them working round the clock.

Suggestions have been made for further studies on suicides in the country.

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3

Clinico-Epidemiological Study of Leprosy in Calcutta with Suggestions for Control Measures

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INTRODUCTION

As the oldest known contagious disease in the world, leprosy has still remained a difficult problem in spite of the discovery of its causative germ and a fairly effective drug— sulphone. Among the peculiarities of this disease may be mentioned its low infectivity and immunisability, its slowness and long duration, non-amenability to treatment (except very recently) and, worst of all, the ugliness and deformities that follow accompanied by the social stigma, ostracism and various superstitious beliefs. Non-susceptibility of experimental animals to the infection and failure to cultivate the organism in artificial media have also greatly limited the scope of experimentation and of acquiring adequate knowledge about the transmission of infection and necessarily of its proper control.

In this communication control measures have been suggested on the epidemiological observations made on the patients attending the clinics in the city of Calcutta.

CURRENT EPIDEMIOLOGICAL KNOWLEDGE :

The primary task of the epidemiologist is to determine the magnitude of the problem in the area and to define it in such terms as will permit comparison with other areas. The question arises whether a close contact is absolutely necessary. He must also find time and opportunity to make an intensive study of special aspects of epidemiology of leprosy such as, relationship of prevalence and type frequency to climate, physiography of the country, ethnology, social conditions, diet, overcrowding, association with insects, if any, tribal and regional customs, co-existing diseases etc. An attempt to study the problem on the above lines was made by Seal and Mathen (1954) under the I.C.M.R. but it remained incomplete. Certain basic points which had been kept in view for elucidation

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in this clinicopathological study of patients in Calcutta were :

(1) Possible sources of infection, (2) age susceptibility and sex differences, (3) individual differences in susceptibility, (4) prevalence of leprosy among different social and economic groups in urban areas, (5) possibility of leprosy being infectious long before it is conspicuous and (6) the position of social ostracism in urban communities.

MATERIAL AND METHOD

A preliminary study of the dispensary records of three leprosy clinics in the city namely, (i) Premananda Charitable Lseprosy Clinic at Manicktala, (ii) South Calcutta Skin Clinic at Kalighat* and (iii) Leprosy Clinic at the School of Tropical Medicine was undertaken for four years from 1963 to 1966 in the first two clinics and for five years from 1961-62 to 1965-66 in the third one. The available information was collected in appropriate cards prepared for the purpose. The total number of new cases in the first two clinics during the year 1964-65 was 2552.

SAMPLING :

Out of 2552 patients a sample of 270 patients was drawn in the following manner :

A 10 per cent sample was taken by a systematic sampling method and an extra 0.5 per cent was added by a simple random technique in order to safeguard against possible loss of some members from the original sample.

Having obtained a preliminary idea of the clinical types of leprosy patients along with other information like age, sex, religion occupation, residence and possible duration of illness etc., from the dispensary registers mentioned above, a 5 per cent sample of 6602 patients from the clinic registers of all the three clinics, during the year 1965-66, namely 330 patients, was drawn on a systemic sampling method for epidemiological investigation at their homes.

The task of meeting leprosy patients in their home surroundings was somwhat difficult as they were most reluctant to meet the investigators at their homes for various reasons. It was also detected that to avoid these troubles many of the patients actually recorded false address in the clinic registers. It was therefore decided to first meet the patients at the clinic and make them agree to the visit on assurance of full secrecy as a personal friend.

The home visits were accordingly made by prior appointment with the individual patients. Even so, it needed repeated visits in 25-30 per cent patients to obtain full information. Nine patients never agreed to meet the investigator at their homes and 22 patients declared they had no home, but even in this group, except the physical conditions of their homes, other informations were available.

It may be mentioned here that the primary dispensary samples were drawn from the two dispensaries at Manicktala and Kalighat and are different from the sample drawn from the three dispensaries at a subsequent stage for home visit. The results are given below.

RESULTS

(1) NEW CASES :

The new cases treated in the Premananda Charitable Leprosy Clinic at Manicktala, South Calcutta Skin Clinic at Kalighat and the Leprosy Clinic at the School of Tropical Medicine, Calcutta during 1961-62 to 1965-66 are given in Table 1.

TABLE 1 —SHOWING NEW CASES OF LEPROSY TREATED IN THE THREE LEPROSY CLINICS AT CALCUTTA BETWEEN 1961-62 AND 1965-66

Year	At the School of Tropical Medicine	Year	Premananda Leprosy Clinic at Manicktala	South Calcutta Skin Clinic at Kalighat	Total
1961-1962	3991	1963	1578	1014	2592
1962-1963	4334	1964	1161	893	2054
1963-1964	4126	1965	1230	1062	2292
1964-1965	3966	1966	1340	1212	2552
1965-1966	4050	—	—	—	—
Total	20467		5309	4181	9490
Annual average	4093		1327	1045	2372

The four years' records of attendance of new cases in the two Leprosy Clinics at Manicktala and Kalighat show a steady flow of new patients and in 1966 an actual increase was noted (*vide* annual average). Including the old cases the total annual average was around 5,000 in the above two clinics. Similarly, there has been no reduction of attendance of new cases during the five years between 1961-62 and 1965-66 at the Calcutta School of Tropical Medicine.

For this non-reduction of leprosy cases two reasons are generally offered, namely, (i) population rise and (ii) more cases coming out of hiding. This may be partly true in the rural areas but in a city like Calcutta it appears that the morbidity rate has remained steady in the absence of active campaign against leprosy other than treatment in the clinics.

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* Clinics No. (i) and (ii) are under the same organisation

(2) PROVINCES OF ORIGIN, AGE, SEX, RELIGION, MARITAL STATUS ETC. :

(a) *Provinces of origin*—The distribution of patients by states of origin for 330 patients contacted in their homes is given in Table 2, and has been compared with that of 270 patients examined from the registers of the Manicktala and Kalighat clinics and also with the results obtained in an earlier study by Seal and Mathen (*loc. cit.*).

TABLE 2—SHOWING THE PERCENTAGE DISTRIBUTION OF LEPROSY CLINICS IN CALCUTTA BY STATES OF ORIGIN

State		330 patients contacted at home (1966-67)	270 patients from clinic registers (1965-66)	Total of both groups	797 patients from clinic registers 1953-54
West Bengal	...	42·0	36·6	39·5	39·2
East Pakistan	...	13·0	7·8	10·7	10·6
Bihar	...	25·0	28 9	26·7	28·0
Uttar Pradesh	..	12·0	8·5	10·5	11·8
Orissa	...	3·0	13·7	7·8	6·2
Others (Nepal and M.P.)	...	5·0	4·4	4·7	4·2

It is noted from Table 2 that the proportional distribution of cases by states of origin indicates higher incidence of leprosy among the Biharis and those born in U.P. compared to their proportion in the city population (Census, 1961).

(b) *Residence and place of birth*—Of the 270 patients taken from the dispensary registers, 219 or 81.3 per cent were residents of Calcutta and 45 or 16.6 per cent had their residence in 24 Parganas at the time of investigation, though their places of birth were as indicated in Table 2. Of the 99 patients of West Bengal the birth places were as follows :

Calcutta—40, Midnapore—15, Howrah—5, Nadia—3, 24 Parganas—16, Purulia—14, Birbhum —4 and Darjeeling—2.

Between Nepal and Madhya Pradesh the former contributed 9 and the latter 3 cases (total 4.4 per cent).

(c) *Age distribution*—The age distribution of 330 patients contacted at their homes has been compared in Table 3 with that of 270 patients examined from the registers of the Manicktola and Kalighat clinics.

TABLE 3—SHOWING THE PERCENTAGE DISTRIBUTION OF LEPROSY PATIENTS ATTENDING LEPROSY CLINICS AT CALCUTTA (1966) BY AGE GROUPS

Age group (years)		330 patients contacted at home	270 patients from the clinic registers	Total of both groups	Calcutta census 1961
3—5	...	0·9	2·2	1·5	8·9
6—10	...	1·6	6·7	3·8	10·9
11—15	...	3·1	4·4	3·7	10·2
16—20	...	14·0	14·4	14·2	9·0
21—25	...	19·0	20·0	19·5	51·0
26—30	...	15·9	10·0	13·1	
31—40	...	24·0	26·7	25·2	
41—50	...	13·4	13·3	13·5	
50 and above		8·1	2·2	2·5	

Children below 15 years in the present study constituted only 9.0 per cent of the two groups of patients studied against 30-32 per cent in the city population. The incidence of leprosy was therefore comparatively much less among children than among the adults, 33.7 per cent belonging to the age group 16-25 years and 51.8 per cent to 26-50 years and 5.5 per cent to 50 years and above. The highest rate was, however, reached in the fourth decade. Similar results were obtained also in the earlier study (Seal and Mathen, *loc. cit.*). It has to be ascertained whether the low incidence in the lower incidence in the lower age groups in the urban areas is only due to prolonged incubation period, absence of early exposure, self-healing or want of susceptibility or any other factor. Simultaneously, it has also to be decided whether the adult infection is primary or a relapse or reinfection.

(d) *Sex distribution*—There were 216 males and 54 females (80.20) in the sample from the clinic registers and 261 males and 69 females (79:21) in the sample contacted at home, the overall proportion being 79.9:20.1 or 4:1. This is contrary to the earlier findings of Rogers and Muir (1946) who noted higher incidence among the females of earlier age groups, as well as of Napier (1946) who recorded a lower ratio 1.5:1 to 2:1 between male and female. These figures may however relate to the rural areas and thus one point which may be partly responsible is the low proportion of women in the city namely, 610 females per 1000 males. However, the comparative lesser susceptibility of women requires a deeper study.

(e) *Marital status*—In the sample of patients contacted at home 70.1 per cent of the patients were married including 4.9 per cent widowed and 29.1 per cent of the patients including children were unmarried.

(f) *Religion*—The distribution of patients by religion in the two samples was nearly the same

TABLE 8—SHOWING THE PERCENTAGE DISTRIBUTION OF LEPROSY PATIENTS FROM DISPENSARY REGISTERS COMPARED WITH THAT OF PATIENTS CONTACTED AT THEIR HOMES BY ECONOMIC STATUS

	Percentage distribution of leprosy patients					
	From dispensary registers		Those contacted at homes		Excluding children and females	
	No.	%	No.	%	Dispensary registry group	Home contacts group
Children and females ...	36	13·3	47	14·2	—	—
Non-wage earners (uninvestigated) ...	71	26·3	51	15·4	30·3	18·0
Monthly income (Rs.)						
Less than 45 ...	6	2·2	46	14·0	2·6	16·2
46—60 ...	21	7·8	37	11·2	9·0	13·1
61—75 ...	30	11·1	89	27·0	12·8	31·4
76—90 ...	41	15·1	23	7·0	17·5	8·1
91—120 ...	40	14·8	17	5·1	17·1	6·0
121—150 ...	18	6·7	13	4·0	7·7	4·6
151—250 ...	7	2·6	7	2·0	3·0	2·5
Total ...	270	—	330	—		
Total wage earners ...	234	86·7	283	85·6	—	—
Wage earners actually earning	163	60·3	232	70·3	69·7	82·0

tacted at their homes. The income level indicated here refers to the index level of 1964. The results are given in Table 8.

Table 8 shows that 13.3 per cent of the patients from dispensary registers and 14.2 per cent among the home contacts were children and females at home (housewives), the corresponding percentage of wage earners* in the two groups being 86.7 and 85.6 per cent respectively. But actually 26.3 and 15.4 per cent of the respective groups being unemployed the proportions of patients in the two groups actually earning wage were 60.3 and 70.3 per cent respectively. 51 patients were not earning in the group contacted at homes, five due to deformity, two due to advanced condition, nine due to discharge from service and the remaining 35 due to other causes. Whereas in the dispensary group the percentage of patients of per capita monthly income level above Rs. 75 constituted 39.2 per cent, the corresponding figure for those contacted at home was only 18.1 per cent. Correspondingly the per capita monthly income level below Rs. 75 was 21.1 per cent (including 2.2 per cent less than Rs. 45) in the first group and 52.2 per cent (including 14.0 per cent less than Rs. 45) in the second group. Excluding the children and females at home (housewives) the proportions of unemployed was 30.3 and 18.0 per cent respectively and among those employed 65.0 per cent in the first group and 25.9 per cent in the second group were earning more than Rs. 75 per month. In other words, quite a sizeable proportion of patients belonged to the middle of even higher middle class families.

Among 232 (70.3 per cent) active earners in the group contacted at their homes 15 patients (6.4 per cent) were the only earning members of their families, the per capita monthly income ranging between Rs. 15 and Rs. 250 per month, an average Rs. 42 per month. The per capita monthly income of 45 per cent of patients was more than Rs. 36.00 including 18.1 per cent having income more than Rs. 75.00 per month. The average monthly income of the leprosy patients in two groups was Rs. 108.00 before detection of the disease and it was reduced to Rs. 84.00 per month (22.2 per cent reduction) after detection, as 24 or 7.4 per cent ceased to earn.

Fifty-three or 16.0 per cent had their own house and 40 or 12.1 per cent were paying house rents between Rs. 75 and Rs. 150 per month. The average house rent of 246 patients living in houses was Rs. 36 per month. These figures related to 1964 index level, indicating that some of the leprosy patients came from moderately high economic group in spite of the fact that a fair proportion of them and most of the patients from the richer families go for private treatment available in the city for fear of exposure.

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* Wage-earner is a person who is normally expected to earn a wage and a non-wage earner is one who is expected to earn his wage but is not earning.

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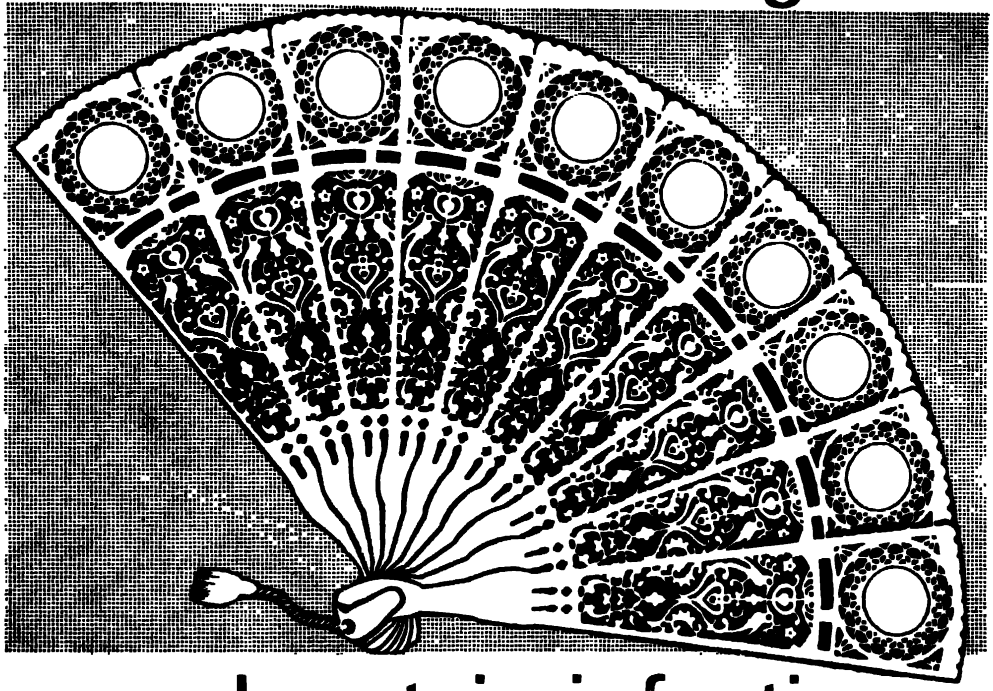

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SUMMARY

(1) The number of new cases attending the leprosy clinics at Calcutta per year between 1961-1962 and 1965-1966 practically remained unchanged, the average annual attendance of new cases in the three clinics studied being 6465 (2372+4093), which suggests little abatement of the disease.

(2) Out of 2552 patients who attended the two Leprosy Clinics at Manicktala and Kalighat in 1966, records a little over 10 per cent sample selected for detailed examination and another 5 per cent sample was drawn out of 6602 patients attending the three clinics including that of the School of Tropical Medicine, for collecting epidemiological data by home visiting.

(3) Of the 270 patients examined from the clinic registers 81·3 per cent were residents of Calcutta and 16·6 per cent came from the neighbouring areas in the district of 24 Parganas; 36·6 per cent of them were born in West Bengal (including 14·9 per cent in Calcutta), 7·8 per cent in East Pakistan, 28·9 per cent in Bihar, 13·7 per cent in Orissa, 8·5 per cent in U. P., 3·3 per cent in Nepal and 1·1 per cent in Madhya Pradesh. A similar distribution was noted among 330 patients contacted at their homes and also earlier in 1953-1954.

(4) Of the 600 patients specially examined, 9·0 per cent were below 15 years of age. 33·7 per cent were between 16 and 25 years, 51·8 per cent were between 26 and 50 years and only 5·5 per cent above 50 years. Males were 79·9 per cent, females 20·1 per cent. Hindus—84·2 per cent, Muslims—14·8 per cent and Christians—1·0 per cent. Cases were thus distributed among different religions in the same proportion as in the city indicating endemic character of the disease.

(5) Among the patients (330) contacted at home 70·1 per cent were married including 4·9 per cent widowed, and 29·1 per cent including children were unmarried but leprosy was absent among the corresponding spouses in this group.

(6) Almost all the common occupations were more or less represented in the sample with preponderance of cases among food handlers, milkmen, domestic servants, hawkers, vendors etc. and scope for spreading infection. As much as 17·8 per cent belonged to liberal profession, teachers and technicians.

(7) The literacy status of the patients corresponded to that of the city population, 48·0 per cent being illiterate, 17·0 per cent just literate, 26·0 per cent completed school and 6·0 per cent university education.

(8) Only 6.8 per cent of patients were not residing in houses, 42·0 per cent were living in family blocks or homes and 38·4 per cent in bustees or barracks and the rest in offices, mills or hostels. The overcrowding was very high, the average number of persons per living room being 4·2. Sanitary conditions were unsatisfactory in 41·0 per cent of houses.

(9) The outlook on food was traditional or prejudiced in 82·0 per cent of patients. Nearly 95 per cent were rice or mixed rice and wheat eaters and 90·4 per cent were non-vegetarians but their diets were generally deficient in animal proteins, vitamins and minerals. General cleanliness was unsatisfactory in about 40·0 per cent cases and 6.0 per cent were eating from the same plates with others.

(10) The proportion of patients in the two groups actually earning wages were 60·3 and 70·3 per cent and excluding children 69·7 and 82·0 per cent respectively. Among the leprosy patients 30·3 and 18·0 per cent respectively were unemployed. Only 9 (or 3·1 per cent) out of 283 adult patients contacted at home were not employed due to deformity, advanced condition of the disease or family reasons. Among those employed, 45·2 per cent in the first group and 21·2 per cent in the second group were earning more than Rs. 75 per month, the average monthly income being Rs. 108·00 before detection of the disease and Rs. 84 per month (22·2 per cent reduction) after detection, as 7·4 per cent ceased to earn. The average house rent of 246 patients living in houses was Rs. 36·00 per month (1964 index level).

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PRACTITIONERS' SERIES

Bradycardia in Myocardial Infarction

P. K. SEN*, A. B. MUKERJEE**

Bradycardia has been observed in 37 out of 100 consecutive cases of acute myocardial infarction admitted in a general medical hospital. It is a well-known fact that bradycardia is common in posterior myocardial infarction. But the relationship

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between the incidence of sinus bradycardia and the site of myocardial infarction is not well established.

The purpose of this paper is to evaluate the incidence of different types of bradycardia, in relation to the site of myocardial infarction and investigate its prognostic significance.

MATERIAL AND METHOD

100 cases of acute myocardial infarction admitted to the general medical ward of R.K. Mission Seva Pratisthan have been studied. The duration of stay in the hospital varied from one month to 3 months. The average stay in the hospital has been about 6 weeks.

Only patients with ECG changes and a heart rate of less than 60 beats per minute were included in this study. The evidence of recent attack was confirmed by elevated serum enzymes and the ECG showing sequential changes of acute myocardial infarction.

The site of the ECG was classified as (i) anterior, if there were Q waves, S-T segment changes in the chest leads with or without changes in leads I and aVL, (ii) inferior (posterior) infarction if these changes occurred in leads III and aVF.

RESULTS

Age of the patients ranged from 30 years to 82 years with an average of 53 years. Of the 100 patients 75 were male and 25 were female. 66 (66 per cent) had posterior myocardial infarction, while the rest 34 (34 per cent) had anterior and/or anterolateral infarction. Of the 66 patients with posterior myocardial infarction, 31 (46.9 per cent) had bradycardia while only 6 (17.9 per cent) of the 34 patients with anterior and/or anterolateral infarction had bradycardia. Table 1 shows the incidence of bradycardia and its relation to the site of infarction.

TABLE 1—SHOWING INCIDENCE OF BRADYCARDIA

Site of infarction	No. of patients	No. of patients with bradycardia	No. of patients with sinus bradycardia	No. of patients with non-sinus bradycardia
Posterior	66	31	12	19
Anterior	34	6	1	5
Total	100	37	13	24

Of the 31 patients with posterior myocardial infarction and bradycardia, 12 (38.7 per cent) had sinus rhythm and 19 non-sinus. Out of 6 patients with anterior and/or anterolateral infarction and bradycardia only 1 (16·6 per cent) had sinus rhythm and the rest non-sinus. The main types of non-sinus bradycardia in these patients were atrial flutter with A-V block, atrial fibrillation with A-V block, nodal rhythm, 1st degree heart block, 2nd degree heart block and complete heart block. Table 2 shows the incidence of different types of bradycardia and their mortality, while Table 3 shows the percentage of mortality.

TABLE 2—SHOWING DIFFERENT TYPES OF BRADYCARDIA AND THEIR MORTALITY

Type of bradycardia		No. of patients	No. of deaths
Atrial flutter with block	...	1	0
Atrial fibrillation with block	...	4	2
1st degree heart block	...	5	2
2nd degree heart block	. .	7	4
Complete heart block	.	6	4
Nodal rhythm	..	4	2
Sinus bradycardia	...	13	2

TABLE 3—SHOWING PERCENTAGE OF MORTALITY IN HOSPITAL

	No. of patients	No. of deaths	Mortality (%)
Sinus bradycardia (including 3 patients who progressed from sinus to non-sinus) ...	13	2	15·3%
Non-sinus bradycardia (including 3 patients who progressed from sinus to non-sinus) ...	27	14	51·8%
Bradycardia of all types ...	37	15	40·5%
Patients without bradycardia ...	63	10	15·8%

DISCUSSION

James and Burch (1958) investigated the anatomy of the arterial supply and found that in 60 per cent of the cases, the right coronary artery gave rise to the sinus node artery while in only 40 per cent of the cases the sinus node artery arose from the left coronary artery. Perhaps this would explain the less incidence of bradycardia in anterior than in posterior infarction. Some cases of bradycardia may be due to other factors especially due to drugs like digitalis and morphine (Fluck *et al.*, 1967).

Sinus bardycardia occurred in 13 patients of whom only two died (15·3 per cent) including one who progressed from sinus to non-sinus bradycardia.

A third patient developed paroxysmal ventricular tachycardia but was successfully treated with quinidine sulphate. Thus the prognosis of patients with sinus bradycardia is good as shown in Table 3 and the same observation is recorded by Master *et al*, (1937), Imperial *et al.* (1960), Julian *et al.* (1964) and George and Greenwood (1967). There was a good association between sinus bradycardia and posterior myocardial infarction. This was also observed by Julian *et al.* (*loc. cit.*), George and Greenwood (*loc. cit.*) and Pick and Dominguez (1957). Atrial flutter with high grade A-V block was noted in one patient. This patient was successfully treated, but the number is too small to predict that the prognosis of patients with this type of block is good. Other workers (Master *et al.*, *loc. cit.*; Askey, 1949) found that its occurrence worsens the prognosis. Nodal rhythm with a slow ventricular rate was observed in only 4 cases of which two died. Both these patients had extensive damage to the heart and were in failure. The mortality in this group appeared to be higher than in the series as observed by Julian *et al.* (*loc. cit.*). In the two cases who survived the damage was not extensive and perhaps nodal rhythm *per se* may not be an important factor for causing haemodynamic disturbances. Complete heart block which occurred in 6 patients was found to be less than that found by Courter *et al.* (1963), Julian *et al.* (*loc. cit.*) and Lown *et al.* (1967). This difference might have been due to the use of electrocardiographic monitoring. The expected association with posterior infarction was found. Complete heart block persisted only for a short time in one of our patients. Others required treatment, but four of them died while one had persistence of block. The over-all mortality in reported series varies from 21 to 100 per cent (Friedberg *et al.*, 1968). The association of high mortality in complete heart block is due to the fact that it occurs in patients with severely damaged hearts with high susceptibility to ventricular asystole and fibriliation. Moreover, the bradycardia causes haemodynamic changes also. The prognosis was better in those who had supraventricular type of QRS complex of normal duration. The site of the infarction also influenced the prognosis. Posterior wall infarction had a better prognosis than anterior wall infarction. This has been observed by Julian *et al.* (*loc. cit.*) and Ghosh (1970). The association between posterior infarction and bradycardia due to nodal rhythm or heart block is easier to explain since in a majority of the cases the atrioventricular node is supplied from the right coronary artery (James and Burch, *loc. cit*).

The high mortality in patients with non-sinus bradycardia is striking. Many of these patients were in a bad state on admission. Harris and Bluestone (1966) consider that bradycardia due to nodal rhythm or heart block is an indication for endocardial pacing. The value of pacing in this context is controversial, some patients undoubtedly benefit, but the procedure is not without considerable risk and difficulty (Paulk and Hurst, 1966; Lassers and Julian, 1967; Ghosh, *loc. cit.*). Hence, the finding of bradycardia in a case of myocardial infarction, should be investigated urgently and where possible transferred to a special unit for further care.

SUMMARY

Bradycardia has been observed in 37 out of 100 cases of acute myocardial infarction with definite electrocardiographic changes and other confirmatory changes of a recent infarction. The incidence of different types of bradycardia, in relation to the site of myocardial infarction and its prognostic significance has been studied. The prognosis of patients with sinus bradycardia has been observed to be better than those with non-sinus bradycardia. The presence of complete heart block worsens the prognosis. Bradycardia as shown to be significantly common in posterior than in anterior myocardial infarction. It has been suggested that the finding of an abnormally low pulse in a case of acute myocardial infarction calls for intensive surveillance.

ACKNOWLEDGMENT

We are thankful to Swami Gahananda, the Secretary of Ramakrishna Mission Seva Pratisthan for allowing us to publish this paper.

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CASE NOTES

I

Ehlers-Danlos Syndrome

MANOHAR DAS*, P. K. SAHA**
Y. MISHRA***

Ehlers-Danlos syndrome is an inherited connective tissue disorder, which belongs to a group of diseases like osteogenesis imperfecta, Marfan's syndrome, Hurler's syndrome (Mckusick, 1965). The other terms used for the syndrome are: dermatofragieity, dermatorrhexis, cutis hyperelastica.

The syndrome was first described by JabaMeek'ren in 1682. Ehlers (1901), a Danish dermatologist, noted that in addition to the hyperextensibility of the skin the joints were excessively mobile and the skin bruised easily. Then Danlos (1908), a French physician, drew attention to the peculiar scar and pseudotumour formation of the skin. Johnson and Falls (1949) were the first to claim that Ehlers-Danlos syndrome was a generalised disease and also showed that it was inherited as an autosomal dominant. Tobias (1934), Ronchese (1936) considered it to be of recessive pattern.

According to Aldrige (1967), 500 cases have been reported so far.

The cases so far described are mostly Europeans. Bruno and Narshimhan (1961) described four cases in a Negro family. Till now only three references are available in Indian literature (Chakravarty *et al.*, 1954; Singh *et al.*, 1964; Sepaha *et al.*, 1966).

Clinical manifestations of Ehlers-Danlos syndrome have been classified as follows: cutaneous, skeletal, ocular and visceral (Bruno and Narshimhan, *loc. cit.*).

Microscopically, the skin shows the abnormalities of the elastic fibres of the dermis.

In most reports the collagenous fibres are considered to be decreased in numbers but normal in size, shape and staining. Ronchese (*loc. cit.*), however, noted thinning and torsion of collagen fibres.

Seeing the rarity of the condition especially in other than Europeans, we wish to report the occurrence of four cases in three generations of an Indian family.

CASE REPORTS

CASE 1:

27-year-old, Hindu, male, belonging to Rourkela was referred to our Skin Department. His chief complaint was swelling near the left elbow joint. The swelling was there for last 15 days. It was painless. He was attending General Medical Outpatient Department for his general weakness. The swelling was gradually increasing in size.

On examination, we found that the patient had extraordinarily hyperelastic skin which could be pulled for 4" at the site of the swelling. When released, the skin returned to its normal site. Hyperelasticity was more marked over the abdomen (Fig. 1). The skin could also be pulled out to a sufficient extent over the neck and knee joint. There was no pain on excessive pulling for a long time. He had unduly hypermobile joints (Fig. 2) but there was no joint effusion or deformity, and ligaments, though hyperelastic, were intact.

The temperature was 98·6°F, pulse 76/minute, respiration 30/minute and B.P. 112/70 mm. Hg.

The sclera was white, conjunctiva pale; pupil round, central, regular, equally reacting to both light and accommodation. Fundoscopic examination and extra-ocular movements were normal.

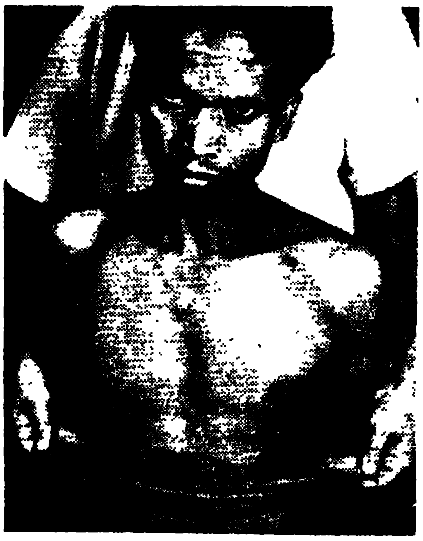

FIG. 1

Thyroid was not palpable and there was no lymphadenopathy. Lungs and heart were normal. Liver and spleen were not palpable. There was no hernia, no deformities but varicose veins were present in both legs

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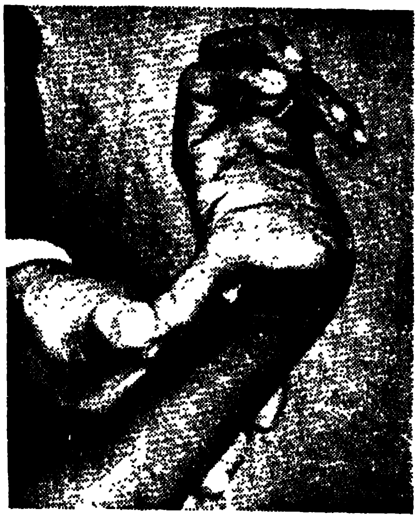

FIG. 2

Investigations—Urinalysis was within normal limits. R.B.C. count was 4·5 millions/c.mm., Hb.—12·75 g. per cent, E.S.R.—4 mm. in first hour (Westergren method). W.B.C.—8700/c.mm. with 58 per cent neutrophils, 6 per cent eosinophils, 35 per cent lymphocytes, 1 per cent monocytes. Serological test for syphilis (S.T.S.) was non-reactive. Bleeding time, coagulation time and clot retraction were within normal limits; Platelets count-220,000/c.mm. Prothrombin time 19 seconds with 19 seconds for control.

Roentgenograms of chest, elbow, knee joints and soft tissues were normal.

Electrocardiogram was within normal range.

Microscopical examination of skin biopsy material showed normal epidermis. Elastic fibres were plenty, coarse and irregular. As the piece was taken from a skin haematoma R.B.C s were seen in plenty in the section.

CASE 2:

13-year-old, Hindu boy, son of case 1 was brought for our observation when asked (Fig. 3). He had hyperelasticity of the skin and tendency towards delayed healing of wounds with no bleeding tendency. Physical examination showed a well developed child who appeared to be of his age. Skin was soft, elastic and lifted easily all over the body. The skin returned to its normal place when released and the skin was not hanging loosely at any place.

Examination of heart, lungs, glands, head, neck and abdomen was unremarkable. There was no hernia and no ulcerations. Temperature—98·2°F. Pulse—72/minute. B.P.—110/70 mm. Hg. Urinalysis and haemogram were within normal limits. Bleeding time, clot retraction time were normal.

Platelets count—2,10,000/c.mm. Prothrombin time 19 seconds with a control of 19 seconds. Serologic test for syphilis was not reactive. Skin biopsy was not allowed.

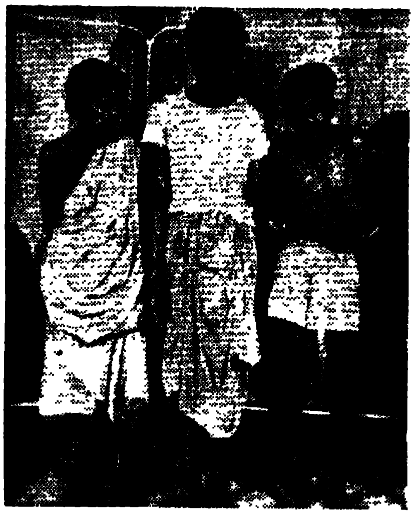

FIG. 3

CASE 3:

11-year-old Hindu boy, second son of case 1 (Fig. 3) was also brought for our observation in the skin department where he was thoroughly examined.

In this case, history of delayed wound healing was present with no history of bleeding. The family history has already been noted above.

Physical examination revealed a well developed boy of average nourishment. The skin was very soft and hyperelastic returning to its normal place on release. Joints were moderately hypermobile. Other physical examinations were unremarkable. Urinalysis and haemogram were within normal range.

Bleeding time, prothrombin time and platelet count were within normal range.

Serologic test for syphilis was non-reactive and skin biopsy was not allowed.

CASE 4:

60-year-old female, mother of case 1, was subjected to examination (Fig. 3). She had hyperelasticity of the skin and hypermobile joints. She gave the history of slow healing of wounds and cuts.

Patient had skin hanging from lower eyelids. Other areas of the skin were hyperelastic but not loosely hanging. The sclera was clear. There was no hernia. Urinalysis and haemogram, bleeding and coagulation time, clot retraction time and platelet count were normal.

Serologic test for syphilis was non-reactive and skin biopsy was not allowed.

COMMENTS

Usually, these cases go to the haematologist for their bleeding tendency. Sometimes, they go to orthopaedic surgeons for subluxation or dislocation of joints or plastic surgeons for correction of disfigurement.

In case 1, patient did not have any of the above complaints, and he was attending a general medical outpatient department for his weakness. From there he was referred to the skin department for an abnormal swelling over the left elbow joint and diagnosis made on the basis of the skin.

On examination, we found his skin hyperelastic with hyperextensible joints; whereupon other members of his family were also subjected to a thorough examination.

SUMMARY

A case of directly observed and pathologically documented Ehlers-Danlos syndrome involving four members of three generations in a Hindu family is reported.

ACKNOWLEDGMENT

We are thankful to Dr. B. S. Dhillon, Chief Medical Officer, Ispat General Hospital for permission to report this case.

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2

Bilateral Conjunctival Epithelioma

K. RAJAGOPALAN*

K. S. SUBRAMANIAM**

It is generally agreed that epithelioma in the eye is not as common as in other regions of the body. In the eye, tumours of the conjunctiva are rare. Our records show 3 cases in 35,500 patients examined in 1968 which compared with the figure of 9 cases in 1951, 130 cases seen by El Bayadi (1953). Bilateral incidence of epithelioma of conjunctiva is a very rare occurrence indeed, and such a case is described here. Bilateral incidence is reported thrice. Ours is perhaps the fourth such report.

CASE REPORT

Kochappy, aged 65 years, was seen in this hospital on 6-11-68 complaining of a white fleshy growth in his left eye since 15 days. There was no history of injury or of previous such episodes. On examination, there was a small pinkish white growth about 3 mm. in diameter at 3 O'clock position of the limbus of the left eye (Fig. 1). The swelling was sessile and fixed to deeper structures. There was no bleeding or discharge from the growth. It was not painful and there was no sign of inflammation, nor were abnormal vessels noticed. Externally, no other abnormality was seen. He had 6/6 vision in each eye; fundi were normal; and tension was within normal limits. The pre-auricular, submaxillary and upper deep cervical group of lymph glands were not enlarged.

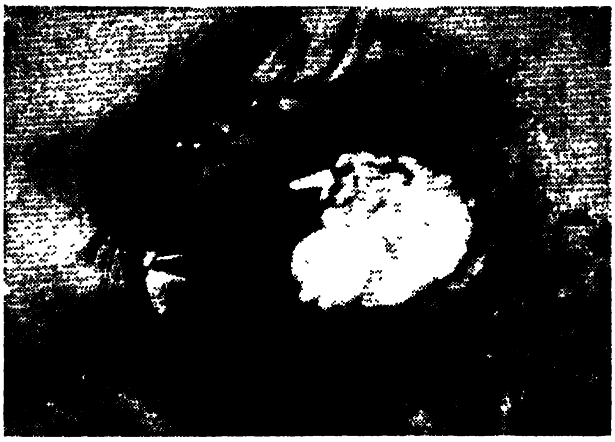

FIG. 1—SHOWING THE GROWTH AT 3 O'CLOCK POSITION OF THE LIMBUS OF LEFT EYE

The tumour was observed to grow rapidly and reached the size of 10 mm. in diameter in one week, and on 14-11-68 the growth was excised and sent for biopsy.

Biopsy—The microscopic report was as follows. The section (Fig. 2) shows a carcinomatous growth composed

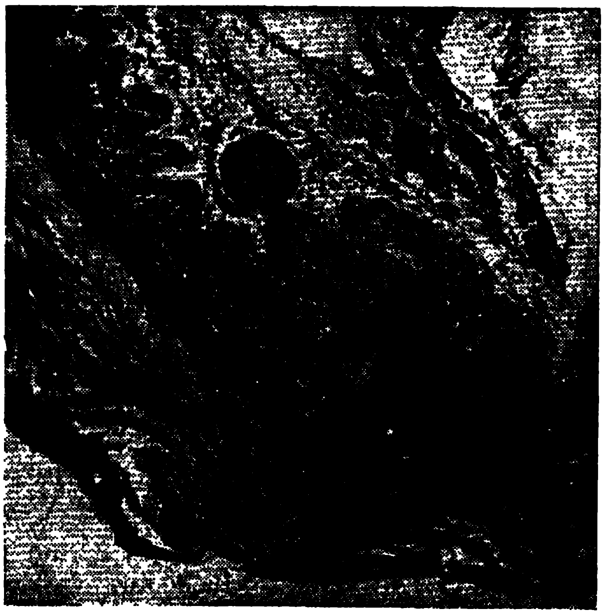

FIG. 2—SHOWING MICROSCOPIC PICTURE OF THE GROWTH EXCISED FROM LEFT EYE

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of large round or polygonal cells with abundant cytoplasm and large hyperchromatic nuclei arranged in groups. Stroma shows round cell infiltration. Epithelial pearl formation is also seen.

Course—The diagnosis of epithelioma of the conjunctiva was histopathologically confirmed. Since the growth appeared to extend to the outer fornix, enucleation was done on 16-11-68 with a collar of normal looking conjunctiva. Portions from the cut margin of the conjunctiva showed no evidence of malignant infiltration on histopathological examination. The wound healed well and the patient was discharged on 24-11-68

On 11-12-68 the patient came back with a small nodule at the nasal limbus of the right eye, 3 mm. in size, fixed and without signs of inflammation. The eye was otherwise normal. A wide excision of the growth was done and histopathological examination proved the diagnosis of epithelioma of the limbus.

Second biopsy report (Fig. 3) showed a piece of stratified squamous epithelium with hyperkeratosis. The epithelium shows typical features and few mitotic figures to suggest an early carcinomatous change.

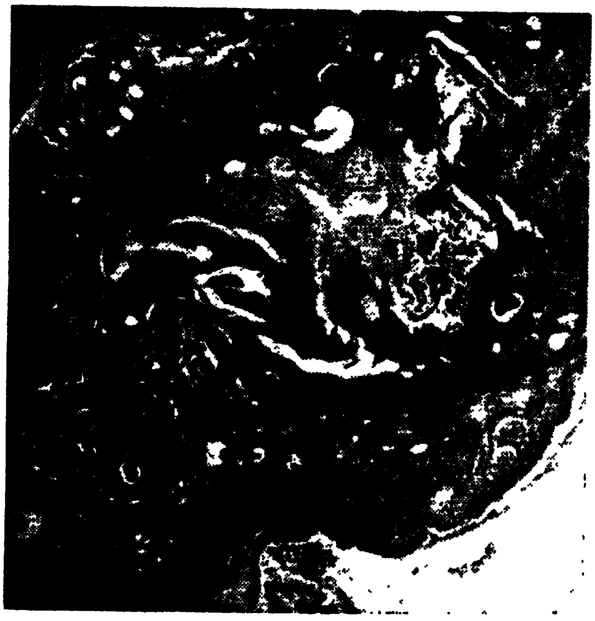

FIG. 3—SHOWING THE MICROSCOPIC PICTURE OF THE GROWTH EXCISED FROM THE RIGHT EYE

A course of irradiation therapy was given to the only remaining eye postoperatively and the case is being followed up. Some degree of radiation dermatitis and conjunctivitis occurred and these are settling down. The socket of the left eye is healthy and there is no evidence of recurrence so far.

DISCUSSION

Malignant epithelial tumours of the conjunctiva are comparatively rare. These tend to occur at the limbal region or lid margin as a caruncle where the epithelium shows transition from one type to another; and at the limbus, mainly in the horizontal meridian in the exposed part of the bulbar conjunctiva. It is presumed, therefore, that the irritation of the exposed conjunctiva by dust, heat, injury, etc., may be responsible for neoplastic changes at the site of election. Males are affected more frequently than females in the ratio of 3:1: The majority of individuals affected are over 50 years of age, though in our series one case occurred at the age of 28 years.

The histological changes that can occur in the epithelium and subepithelial tissues are very varied and are important in the diagnosis.

Epidermalisation and dyskeratosis may produce a leukoplakic patch at the limbus. On section, it may show mitotic figures, hyperchromatic nuclei and irregular arrangement. Such a picture indicates precancerous hyperplasia, and excessive vascularisation of the lesion may suggest a malignant change. At this stage diagnosis may be extremely difficult even on histological examination.

An intraepithelial epithelioma or carcinoma *in situ* (Bowen's disease) shows no subepithelial invasion, but there is lateral spread, corneal involvement and it may even be bilateral or multifocal (Roper, 1957). Histologically there is proliferation of basal cells not involving the basal membrane and a pleomorphism of cells with the characteristic 'monster cells' or the 'Corps rondes' of Darier— a large vacuole surrounding the nucleus producing a double-ring appearance. Rarely, frank carcinomatous change may occur.

The squamous cell cancer shows break down of the basement membrane and subepithelial invasion and formation of epithelial pearls. Due to the toughness of the corneoscleral envelope and relative paucity of lymphatics, outward growth is more in evidence. Involvement of the eyeball is rare and late. Lateral sprad to the orbital cavity and involvement of the regional lymph glands are also late.

By and large, the lesion is only mildly malignant and in the great majority of cases local excision suffices follow, if necessary, by irradiation. Excision of the eyeball or even exenteration of the orbit seems to be indicated only when the eyeball is infiltrated or there is extension into the orbital cavity.

We would like to emphasise (1) that a conjunctival epithelioma may be histologically mimicked by precancerous leukoplakia or Bowen's disease and histopathological diagnosis may not always be easy. (2) The neoplastic lesions are so mildly malignant that the previous concept of enucleation of the eyeball is now largely replaced by local excision, followed, if necessary, by irradiation.

SUMMARY

A rare case of bilateral conjunctival epithelioma is described and the nature of these lesions, prognosis and difficulty in diagnosis are discussed.

ACKNOWLEDGMENT

Our thanks are due to the Principal, Medical College, Trivandrum and the Director of Health Services, Kerala, for permission to publish.

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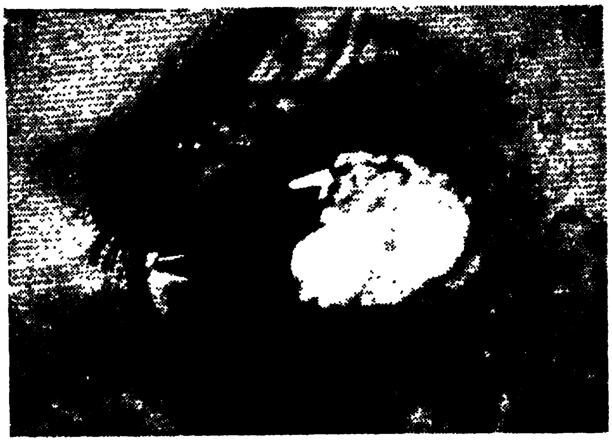

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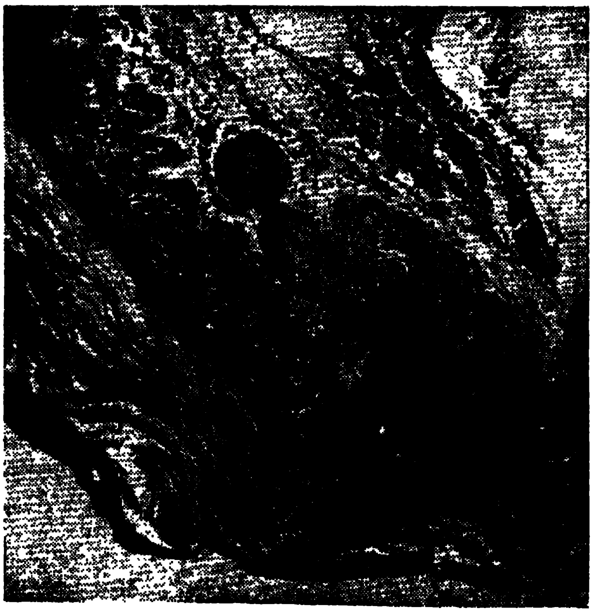

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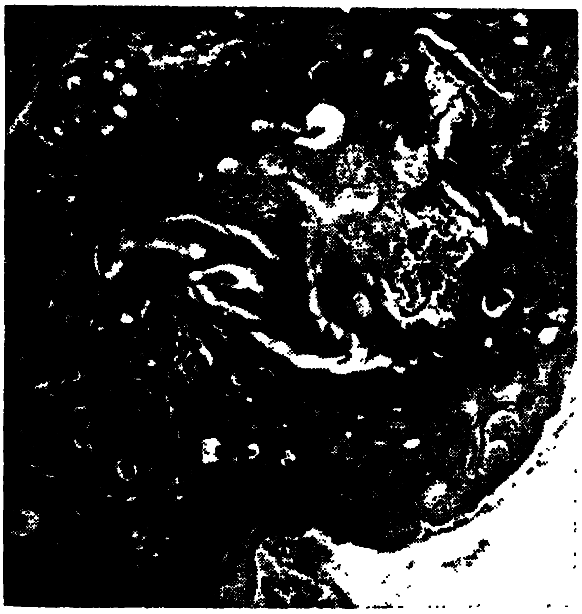

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Epidermalisation and dyskeratosis may produce a leukoplakic patch at the limbus. On section, it may show mitotic figures, hyperchromatic nuclei and irregular arrangement. Such a picture indicates precancerous hyperplasia, and excessive vascularisation of the lesion may suggest a malignant change. At this stage diagnosis may be extremely difficult even on histological examination.

An intraepithelial epithelioma or carcinoma *in situ* (Bowen's disease) shows no subepithelial invasion, but there is lateral spread, corneal involvement and it may even be bilateral or multifocal (Roper, 1957). Histologically there is proliferation of basal cells not involving the basal membrane and a pleomorphism of cells with the characteristic 'monster cells' or the 'Corps rondes' of Darier—a large vacuole surrounding the nucleus producing a double-ring appearance. Rarely, frank carcinomatous change may occur.

The squamous cell cancer shows break down of the basement membrane and subepithelial invasion and formation of epithelial pearls. Due to the toughness of the corneoscleral envelope and relative paucity of lymphatics, outward growth is more in evidence. Involvement of the eyeball is rare and late. Lateral sprad to the orbital cavity and involvement of the regional lymph glands are also late.

By and large, the lesion is only mildly malignant and in the great majority of cases local excision suffices follow, if necessary, by irradiation. Excision of the eyeball or even exenteration of the orbit seems to be indicated only when the eyeball is infiltrated or there is extension into the orbital cavity.

We would like to emphasise (1) that a conjunctival epithelioma may be histologically mimicked by precancerous leukoplakia or Bowen's disease and histopathological diagnosis may not always be easy. (2) The neoplastic lesions are so mildly malignant that the previous concept of enucleation of the eyeball is now largely replaced by local excision, followed, if necessary, by irradiation.

SUMMARY

A rare case of bilateral conjunctival epithelioma is described and the nature of these lesions, prognosis and difficulty in diagnosis are discussed.

ACKNOWLEDGMENT

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Heart Block

Only a decade back, patients suffering from heart block and Stokes-Adams attacks were treated conservatively and carried a serious prognostic significance. The successful use of pacing has revolutionised the treatment of heart block and altered the outlook of these unfortunate patients. However, to obtain maximum benefit out of this procedure, proper selection of patients and accurate knowledge of the backgound of the disease are desirable. This consideration has provoked renewed interest on the subject matter of heart block. Disturbances in conduction may lead to sino-atrial block, atrioventricular block or bundle branch block. But since sino-atrial block occurs rarely and carries little significance, emphasis has been laid mainly on the latter two types of heart block in major publications in recent times.

Atrioventricular block may vary in degree from prolonged atrioventricular conduction time (prolonged P-R interval in ECG) and partial heart block to complete heart block. The block may be transient or permanent and may represent a functional or organic disturbance. The incidence is uncertain because the lesser degree of heart block without clinical symptoms may be overlooked. Serious clinical manifestations are most likely to occur only in advanced or complete heart block and they occur either because of extreme bradycardia (below 30/minute) or because of intermittent failure of the idioventricular pacemaker leading to Stokes-Adams syndrome. Diagnosis is helpful in most cases by electrocardiography but this does not exactly localise the site of involvement in different types of heart block. The use of Bundle of His electrocardiogram has considerably aided in elucidating the problem and. contrary to earlier belief that first and second degree heart block are due to lesion of the A-V node[1, 2], it is now well known that lesions lower down in the bundle and its branches can also cause them[3]. Previous reports[4, 5] about the high incidence of Stokes-Adams attacks with second degree heart block also, are in accord with this finding.

In complete heart block the wider QRS indicates that the idioventricular pacemaker is located below the bifurcation of the bundle of His but sometimes QRS may be narrow and supraventricular in type when the pacemaker is above the bifurcation of the bundle. The latter type is especially seen in congenital heart block. Histological studies have now confirmed that in complete heart block, the lesion may lie either in the A-V node and bundle of His or it may involve both the branches of bundle of His—bilateral bundle branch block[6, 7]. In a recent paper[8] bilateral branch fibrosis was found to be the commonest lesion causing complete heart block with an incidence of 40 per cent in an autopsy series of 650 patients. In view of this, one should be guarded in pronouncing the prognosis of isolated right BBB and left BBB, particularly in elderly individuals as this may indicate serious organic heart disease which may not be immediately apparent[9].

The aetiopathogenesis of heart block has received considerable attention in recent times. The gap in knowledge has been partially supplemented by autopsy studies[8]. Such studies have revealed that often causation assumed on clinical and ECG findings is wrong. On the other hand this knowledge is important because the prognosis of the patient will depend more on the underlying causation than on the type and degree of heart block itself. and continuing improvement in pacing techniques makes it mandatory to have an accurate knowledge of the underlying background, if maximum benefit is to be derived from such a treatment. Coronary arterial disease has been generally accepted in the past as the predominant cause of heart block, the incidences being 43 per cent[10], 69 per cent[11] and 48 per cent[12]. Other studies have however drawn attention to the occurrence of 'fibrosis of unknown aetiology' involving the conducting system, as the

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major cause of heart block[7, 13, 14]. Other conditions which can cause heart block are cardiomyopathy, myocarditis (rheumatic, viral, nonspecific), syphilitic heart disease, calcification of valves and rings, aortic stenosis, collagen diseases, amyloidosis, drugs like digitalis and acute infection, e.g., diphtheria and congenital lesions.

As emphasised earlier, bundle branch block, particularly bilateral BBB has assumed considerable significance in the genesis of complete heart block in recent times. The ECG pattern of bilateral BBB may be diverse but the one with right BBB pattern with left axis deviation is worth mentioning as a high proportion of this subsequently may develop complete heart block with Stokes-Adams syndrome. It is difficult to prognosticate which bundle branch block is more harmful but knowledge of the anatomy of cardiac conduction tissue is helpful in understanding this problem[15]. The right branch leaves the main bundle of His as a single discrete structure and runs someway as such before splitting up to supply the ventricular mass. It, therefore, follows that a small lesion can interrupt conduction resulting in right BBB. On the otherhand, the left branch leaves the main bundle as a series of radiating fine structures and therefore a much bigger lesion is necessary to interrupt all these fibres to cause total left BBB.

Recent work[16] has thrown further light on the concept and diagnosis of bilateral BBB. The ECG pattern of right BBB with left axis deviation has been correlated with block of left superior or anterior division of left bundle branch in addition to right branch and similarly there may be the less commoner association of right BBB and block of left inferior or posterior division of left bundle. These combinations are to be regarded to be of serious import as these are very prone to complete A-V block. Early diagnosis of such bilateral branch conduction disturbances is of extreme importance and such cases represent one of the best indications for demand pacing.

During the last few years, considerable interest has been shown in conduction disturbances following acute myocardial infarction and there has been much discussion on the role of pacing in acute infarction. The interest has no doubt been provoked because of the high mortality associated with this complication in acute myocardial infarction and the obvious desire of the physician to improve the prognosis of the patients. Important differences have been described between the natural history of A-V block according to whether it complicated anterior or diaphragmatic infarction[17]. It was found that diaphragmatic infarction produced block by virtue of reversible ischaemia to the A-V node and thus often progressed from the first to second degree and occasionally to third degree block with Stokes-Adams attacks and the prognosis from the A-V block itself was good. In contrast, in anterior myocardial infarction, the conduction disturbances were due to massive septal involvement with necrosis of the bundle branches leading to complete A-V dissociation. The prognosis was poor and the warning of complete heart block was not the first degree heart block but usually right BBB. It was confirmed by recordings of His bundle electrograms[18] that diaphragmatic infarction was characterised by block distal to the bundle of His thus partially explaining the differences in clinical behaviour.

In a report of 446 patients with cardiac infarction admitted to the coronary care unit, an incidence of 11·5 per cent conduction disturbances with a mortality of 33 per cent was reported[19]. There

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were three times as many patients with diaphragmatic infarction than anterior infarction and their mortality rate was only one third that of the latter. On the basis of this work, it was suggested that prophylactic pacing prior to the development of complete heart block is of little value in patients with diaphragmatic infarction but may be of value in those with anterior infarction with right BBB in ECG. In a study of the natural hstory of 568 patients in a coronary care unit[20], right BBB was present in 7 per cent of patients with a mortality of 61 per cent and left BBB in 40 per cent of patients with a mortality of 48 per cent. Thus confirming the suggestion[19] that use of transvenous pacemaker should be considered in patients with anterior infarction who develop right BBB. Recently[21], attention has been drawn to the occurrence of right BBB with left axis deviation in acute myocardial infarction and to the poor prognosis it carries. Out of 114 patients with acute myocardial infarction, 10 had this pattern and of them 7 died. Earlier, a similar report[22] was published with a mortality of 48 per cent and icnidence of 7·5 per cent. It was concludeo[12] that early recognition of the pattern of right BBB with left axis or right axis deviation in acute myocardial infarction is important and insertion of demand pacemaker may reduce mortality, though the prognosis remains grave in these patients due to high frequency of cardiogenic shock reflecting extensive myocardial damage. Recently, value of prophylactic pacing even in patients with anterior infarction where it is generally considered indicated has been seriously questioned. It has been suggested[23] that myocardial damage in such cases is so extensive that it is this factor which determines the prognosis and despite the prophylactic introduction of pacing electrodes, there is usually diminishing mechanical response as well as mechanically introduced arrhythmias that ultimately lead to a fatal outcome. Since this study, it has been the practice of these workers not to introduce pacing electrodes in patients with bilateral bundle branch block before the onset of complete heart block. More work in future will no doubt throw further light on these controversial aspects of prophylactic pacing in acute myocardial infarction.

Comparative figures for the survival rate of patients with chronic heart block treated conservatively and by pacing are now available. A study[24] of 203 patients with long acting isoprenaline showed that 42 per cent were maintained satisfactorily for a mean period of 18·2 months. The survival rate at one, two and three years were 76, 64 and 57 per cent respectively. In another 156 patients where pacing became necessary the survival rates were 83, 72 and 60 per cent, a significantly better result with this form of therapy at the one and 2-year level. The two groups, however, may not be strictly comparable as those who were paced belonged to the poor risk group of patients In the same study[24] patients with heart failure with slow rate and those with angina of effort did not respond to treatment with sympathomimetic drugs

In this issue of the journal[25], a clinical report on 50 subjects of complete heart block appears, detailing the aetiology, nature of the underlying heart disease and outcome of treatment. As emphasised earlier, study based on clinical bias may not always reflect the true nature of the disease and much can be learnt from autopsy examination in fatal cases. Much work remains to be done in our country on this aspect of the problem.

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CURRENT MEDICAL LITERATURE

Hepatocellular Response to Hypovolaemic Shock and Vasoexcitor Drugs

O'Connell, T. and Fonkalsrud, E. W. (*Surgery*, **69**: 373, 1971) from the Department of Surgery, School of Medicine, University of California at Los Angeles, write:

Alpha-adrenergic stimulation (Aramine) and beta stimulation (Isuprel) were contrasted in their effects on the systemic arterial and portal venous circulation and the hepatocellular biochemical response in treating dogs in hypovolaemic shock.

Alpha stimulation produced a relatively high systemic arterial pressure for a few hours, although portal venous flow was decreased and portal pressure was increased. High elevations of intralysosomal and mitochondrial enzymes occurred simultaneously in the circulation.

In contrast, beta stimulation resulted in a somewhat lower systemic arterial pressure which was maintained for long periods. The portal venous pressure decreased slightly and the hepatocellular enzymes were only slightly elevated in the circulation.

It appeared that maximal beta and minimal alpha-adrenergic stimulation were desirable to provide maximal hepatic blood flow and hepatocellular integrity in hypovolaemic dogs. This principle may be of value in the selection and management of prospective donors for hepatic allotransplantation.

The Electrocardiogram in Chronic Bronchitis and Emphysema

Zwi, S., Kanarek, D. J., Crosley, A. I. and Goldman, H. I. (*S. Afr. Med. J.*, **45**: 205, 1971) from Respiratory Unit, Department of Medicine, University of the Witwatersrand and Johannesburg Hospital, comment:

In a carefully selected series of 50 White adults with chronic bronchitis and emphysema, it has been confirmed that P wave axis and shape, as well as QRS axis and degree of clockwise rotation, are related to the degree of airway obstruction, assessed by FEV_1/FVC percentage. The degree of hyperinflation assessed by RV percentage of the predicted value appears to be of much less importance in influencing the electrocardiogram Arrhythmias and right ventricular hypertrophy are uncommon, occurring in less than 10 per cent of this series.

Controlled Trial of Lignocaine in Prophylaxis of Ventricular Arrhythmias Complicating Myocardial Infarction

Bennett, M. A., Wilner, J. M. and Pentecost (*Lancet*, **2**: 909, 1970) from Coronary Care Unit, General Hospital, Birmingham, observe:

374 patients with suspected (and, later, confirmed) myocardial infarction were given intravenous lignocaine 60 mg. followed by lignocaine infusion at 0·5 mg. (group A) or 1 mg. (group B) per minute for forty-eight hours or no lignocaine (group C). There was no significant difference in the incidence of ventricular ectopic beats and tachyarrhythmias between the control and treated groups. Infusion of lignocaine at the dose levels used did not result in an increase in the incidence of cardiac failure, shock, or conduction disturbances

The Aetiology and Possible Prevention of Myocardial Infarction

Jacobs, D. (*S. Afr. Med. J.*, **45**: 275, 1971) from Discoverer's Memorial Hospital, Florida, Tvl, comments:

The subjects of this study were 250 cases of myocardial infarction treated personally. Despite lack of proof that the relationship is causal there is a clear association with obesity, excessive cigarette smoking, hypertension, emotional stress, hyperuricaemia and in qualified groups hyperlipidaemia. Until the aetiology of myocardial infarction has been clarified, it would appear reasonable to treat these factors so as to perhaps afford potential myocardial infarction sufferers some prophylaxis.

Indirect clinical evidence is presented, which, correlated with the structural chemical similarities between cholesterol, sex hormones, vitamin D_3 and cortisone, suggests that future research be guided along these lines in the hope that a common denominator will eventually be discovered.

The Minimal Inhibitory Concentrations of Sulphadimethozine and Sulphadoxine Against *Mycobacterium leprae*

Ellard, G. A., Gammon, P. T., Rees, R. J. W. (*Leprosy Rev.*, **41**: 223, 1970) from the Department of Tuberculosis, Royal Postgraduate Medical School, London, W. 12 and the Department of Leprosy and Mycobacterial Research, National Institute for Medical Research, Mill Hill, London, N.W. 7, state:

Sulphadimethoxine inhibited the multiplication of *Myco lepare* in the mouse footpad system when given at a dietary concentration of 0·01 per cent, but not at one of 0·001 per cent. Sulphadoxine inhibited the multiplication of *Myco. leprae* at a dietary concentration of 0·04 per cent, but not at one of 0·004 per cent. Determination of the plasma concentrations of the 2 drugs in mice fed with these dietary concentrations of sulphadimethoxine and sulphadoxine indicated that the M.I.C.s of these 2 compounds against *Myco. leprae* were between 20 and 35 μg per ml. The significance of these findings is discussed, both in relation to the previously determined M.I.C. of dapsone against *Myco. leprae* and to the use of these 2 long-acting sulphonamides in the treatment of human leprosy.

Diabetes Mellitus in Northern Ethiopia

Belcher, D. W. (*Ethiopia Med. J.*, **8**: 73, 1970) from Haile Sellassie I University Public Health College, Gondar, Ethiopia, observes:

Ninety-four diabetic patients hospitalised at the Gondar Hospital, Begemder Province, northern Ethiopia, in the two year period 1967-1969 are analysed. Seventy-nine per cent of the patients were under the age of 40, males predominated in a 2·4 to 1 ratio, and obesity was uncommon. Following discharge, diabetics frequently discontinued insulin but seldom developed ketoacidosis. Most diabetics were thin farmers with negative family histories. Eighty-six per cent of patients exhibited typical diabetic symptoms including polyuria, weight loss, and weakness. Few cases were diagnosed by laboratory demonstration of glycosuria. Neuropathy was found in the majority but retinopathy and vascular disease were rare. In spite of marked glycosuria, insulin treatment gave fair to good control in most of the patients

Investigation of the Relation Between Low Back Pain and Occupation

Magora, A. (*Industr. Med. Surg.*, 39: 31, 1970) from the Department of Physical Medicine and Rehabilitation, Hadassah University Hospital, Jerusalem, Israel, writes:

The relationship between 8 preselected occupations and the low back pain syndrome with regard to general background data such as age, sex, ethnic group, etc. was studied. Of the 3316 individuals investigated, 429 (12·9 per cent) had LBP. The highest incidence was found in heavy industry workers and nurse, the lowest in policemen. The incidence of LBP increased in linear proportion to age, and a tendency to earlier appearance of LBP was detected in heavy industry workers, nurses and bus drivers. Of the three basic communities, the Ashkenasis (Western hemisphere) had the highest incidence of LBP, the Orientals the lowest. Women tended to show a higher proportion of LBP in the occupations requiring hard physical efforts. A high incidence of LBP was found to be related to a high level of education and a low degree of religiousness, and *vice versa*.

Simultaneous Immunisation with B.C.G., Diphtheria-Tetanus, and Oral Poliomyelitis Vaccines in Children Aged 13-14

Galbraith, N. S., Crosby, G., Barnes, J. M. and Fernandes, R. (*Brit. Med. J.* 2: 193, 1971) from the Departments of Borough of Newham, London E15 1HR and Glaxo Laboratories Ltd., Greenford, Middlesex, write.

The simultaneous administration of B.C.G. vaccine, diphtheria-tetanus toxoid aluminium hydroxide adsorbed vaccine, and oral poliovaccine was studied in 628 children aged 13-14 years between 1966 and 1969 in Newham, London. The efficacy of these vaccines was unaffected by administering them at the same time; routine simultaneous administration is considered justified when organisational difficulties prevent the attainment of high immunisation rates with the vaccines given separately. No adverse reactions to B.C.G. or oral poliomyelitis vaccines took place, but 8 per cent of children had moderately severe local reactions after diphtheria-tetanus aluminium hydroxide absorbed vaccine, which were attributed to diphtheria toxid.

Serological studies showed the need for immunisation against diphtheria, tetanus, and poliomyelitis at 13-14 years of age. Because of the adverse reactions to diphtheria toxoid, however, simultaneous administration of tetanus toxoid aluminium hydroxide adsorbed, oral poliomyelitis, and B.C.G. vaccines only is recommended at present.

An "adult type" diphtheria-tetanus toxoid might overcome the problem of reactions, though in two to three years' time most children aged 13-14 years will have received diphtheria-tetanus-pertussis vaccine in infancy and reinforcement might then be accomplished by a small intradermal dose of the currently available fluid diphtheria-tetanus vaccine.

Continued serological studies of diphtheria and tetanus antitoxins and polio antibody are necessary to determine the future need for reinforcement of immunity; such studies should become an essential part of the surveillance of the community immunisation programme.

Does Physical Exercise Aggravate Hepatitis?

Lukash, W. E. (capt.), (*Milit. Med.*, 136: 234, 1971) from Gastroenterology Clinic and Research Branch, Naval Hospital, National Naval Medical Centre Bethesda, Md. 20014, writes:

These studies revealed that a vigorous exercise test did not aggravate convalescent patients with resolved hepatitis and normal serum enzymes, after treatment in the traditional manner by restricted activity and bed rest. Transitory post-exercise serum enzyme elevations noted in our ptaients were considered to have originated from muscle rather than from liver. In addition, a recent Vietnam study indicated that patients in the acute phase of infectious hepatitis did not appear to be aggravated by a program of earlier ambulation and strenuous physical activity.

On the basis of these two clinical studies, a more liberal approach regarding physical inactivity and prolonged bed rest is recommended, for previously healthy young men convalescing from infectious hepatitis. Continuance of restricted physical activity and extended convalescence are unwarranted, and the patient should be allowed to resume his normal living pattern after liver function tests return to normal. In addition, those asymptomatic patients, convalescing from hepatitis with only minimal abnormalities in serum transaminase, should also be allowed full physical activity as tolerated.

Detection of Heart Disease in Children

Reynolds, J. L. (*J. Louisiana State Med. Soc.*, 123: 35, 1971) from the Departments of Paediatrics and Surgery, Tulane University School of Medicine, New Orleans, writes:

The author presents a complete report on detecting heart disease in children. He feels that "with the advent of computer screening, the physician is relieved of the tedium of screening *en masse*, but his skill in cardiac differential diagnosis will, *pari passu*, require sharpening."

Heart disease in children, over 90 per cent of which is either congenital or rheumatic, is an important paediatric problem. Its manifestations are frequently age-dependent since heart disease in this age group is both anatomically and physiologically dynamic. Although a multiplicity of abnormal physical findings indicate heart disease in the child as in the adult, discovery of a significant murmur is pre-eminent in paediatric heart disease detection. Two especially useful signs of heart disease in the absence of a murmur are tachypnoea and palpability of the right ventricle. Also useful in detection is an awareness of a heart disease-paediatrid syndrome nexus. This awareness alerts suspicion of heart disease and aids in its early recognition. While individual screening for heart disease will always be necessary, we now have the capability of efficiently and effectively screening, for the first time, large populations of children by use of an analog-digital computer.

Cholestyramine

THOMPSON, W. G. (*Canad. Med. Ass. J.*, 104: 305, 1971) from the Department of Gastroenterology, Ottawa Civic Hospital and Department of Medicine, University of Ottawa, states:

Cholestyramine is an anion exchange, bile salt sequestering synthetic resin which has a variety of actual and potential clinical applications. Its use for the pruritus of obstructive jaundice, type II hyperlipoproteinaemia and bile salt diarrhoea is established. Its potential use in weight reduction, porphyria, drug toxicity and even gallstones needs further investigation. In some situations cholestyramine will lower the serum bilirubin, but this has little clinical application. A valuable research tool, it has clarified many aspects of bile salts and intestinal physiology. It interferes with the absorption of thyroxine, laevothyroxine and probably many other drugs, and is best not administered simultaneously with other agents. The chief undesirable effects of long-term cholestyramine therapy appear to result from malabsorption of fat-soluble vitamins.

Methylprednisolone Therapy for Pulmonary Oedema Following Near Drowning

SLADEN, A. AND ZAUDER, H. L. (*J. Amer. Med. Ass.*, 215: 1793, 1971) from the Respiratory Service of the Department of Anaesthesiology and Anaesthesia Laboratories, of the University of Texas Medical School at San Antonio, San Antonio, observe:

Earlier concepts that near drowning in fresh water results in dry lungs are known to be incorrect. In fact, pulmonary oedema develops. Treatment with diuretics and occasionally digitalis has not proven to be satisfactory.

Alexander, in 1968, examined the lungs of experimental animals into which solutions of varying pH and tonicity had been aspirated. Pulmonary oedema was present in all specimens, including those in which distilled water was the aspirated fluid. Electron microscopy revealed fluid in the alveoli, as well as separation of the vascular endothelium from the alveolar epithelium by interstitial fluid. It was apparent that it was the aspirated fluid which produced the lesion. The pH and tonicity increased the reaction only in erms of degree and time.

Overwhelming experimental and clinical evidence indicates that corticosteroids are the primary drugs in the treatment of acid aspiration into the tracheobronchial tree. Since the pathologic process produced by fresh water aspiration is similar to that produced by acid aspiration, corticosteroids should be the most efficient drugs in the treatment of fresh water near drowning.

This study has demonstrated that the administration of methylprednisolone, a highly potent anti-inflammatory drug of low toxicity, produced marked improvement in oxygenation and ventilation, and in the pulmonary oedema as visualised roentgenographically. These results parallel the beneficial effect of corticosteroids used as the current standard therapy for acid aspiration pneumonitis (Mendelson's syndrome).

The action of methylprednisolone is nonspecific, and its site of action is local. The degree of anti-inflammatory action is proportional to the concentration at the site of cellular damage. Hence, the role of methylprednisolone is to reduce the acute inflammatory process, thereby resolving the pulmonary oedema.

Although the groups studied were small, we believe methylprednisolone should now be included early and continued for 72 hours in the current therapy for all victims of fresh water near drowning.

CURRENT TOPIC

History of Medicine

SRIKUMAR ROY*

T. H Huxley (1864) opined that "Every living creature commences its existence under a form different from, and simpler than, that which it ultimately attains". In medical science also, our present conceptions about the pathology, diagnosis or treatment of any disease evolved from their simpler form of the past. For example, in a sense, Lister did not discover antiseptic surgery but it evolved in his master mind in 1867 from works of Semmelewis in 1847 and Pasteur in 1863 (as cited by Hoggard, 1959; Gibson, 1967). Lister himself admitted as much in his letter to Pasteur. Hence, as Sir Zachary Cope (1957) said "....... it is wise to look back and view the landmarks along the road which has been traversed". It is always interesting to study the development of the past which had so much impact on our older knowledge as to mould it bit by bit to its present form.

The science and art of healing have also taken their own swing with the pendulum of civilisation. In this space age, when man is dreaming of creating "man—made to order" by altering the genes, we are apt to forget our palaeolithic ancestors who were deprived even of a soothing balm for their sores inflicted by savage animals! In their struggle for existence, those lone wanderers had to learn their own medicines from their animal neighbours. Then man gradually learnt to live in society and medicine became a social science. By painstaking trials and errors the subject tottered through phases of faith healing, hygienic cures and drug therapy till the advent of the Aegian civilisation.

Greeks, who were great organisers of culture, assimilated whatever they could from the ancient Egyptians and Sumers and the great healing cult of Aesculapius evolved. Hippocrates of Cos, the father of western

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medicine, who lived and worked about five hundred years before the birth of Christ, was a product of this cult. Aesculapius might have been a true or a mythological character but such was his impact on social medicine that his symbol, two snakes twined on a staff, is still used as an emblem of medicine (readers are referred to the emblem of the Indian Medical Association for example) and his daughter Hygiea is also immortalised in such terms as hygiene, hygienic etc. The hospital-monasteries of Greeco-Roman civilisation, or the Aesculapins as they were called, dominated the medical world up to the time of Galen (2nd century A.D.).

In the middle age, western medicine began to be influenced by the Arabs. Even Paul of Aegina (7th century A.D.), whose knowledge of the subject was so advanced that he actually performed the first operation of laminectomy (cited by Bick, 1968) could not overcome their influence. Subsequently, western medicine became completely dominated by the Arab physicians like Rhazes (860-932 A.D.), Haby Ben Abbts (994- ?), Avicema (980-1032 A.D.) etc. But in 11th century the rumbling of the "Great Awakening" began to be heard and the pendulum once again swung back to the West. The great medical university of Salerno was created; western medicine gathered momentum and blazed the trail to its present form.

Unfortunately, the contributions of India which nurtured one of the oldest civilisations in human history towards this process of evolution of modern medicine, were never recognised until recently. According to Elliot Smith (cited by Hall, 1912), Sumers were Dravidian immigrants and hence we can imagine that medicine of ancient Greece, the fountain head of western civilisation, was somewhat influenced by Indians. As a matter of fact Professor E. R. Dodds (cited by Nehru, 1969) has emphasised on the "oriental background against which Greek culture rose and from which it was never completely isolated save in the minds of classical scholars". Even if we deny the antiquity of Susruta over Hippocrates, we cannot but accept the influence of this great Hindu surgeon in Arabic medicine who in turn dominated the western medicine in early phase of the Middle Age. But Indians had never been good historians and in general they were reluctant to documentation. Thus, in spite of the efforts of some foreigners like Jolly Julius and others. we have come to know very little of the riches that the works of Susruta or Charaka hold. We know that our poor country cannot afford to establish such organisations as The Wellcome Foundation for research in history of medicine, but surely we can immediately take a pilot project at national level to dig up the past of Indian medicine and thus help our future in the healing art because, as Shakespeare wrote, "Past is only prologue".

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NOTES AND NEWS

Registration of Additional Qualification and Change in Address

The Registrar, Medical Council of India, has issued the following notification:

Section 26 of the Indian Medical Council Act, 1956 provides that if any person whose name is entered in the Indian Medical Register obtains any title, diploma or other qualification for proficiency in Sanitary Science, Public Health or Medicine which is a recognised medical qualification, he shall, on application made in this behalf in prescribed manner, be entitled to have an entry stating such other title, diploma or other qualification made against his name in the Indian Medical Register, either in substitution for or in addition to any entry previously made. The entries in respect of such person in State Medical Register shall be altered in accordance with the alterations made in the Indian Medical Register.

Section 28 of the Indian Medical Council Act, 1956 further makes it obligatory that every person registered in the Indian Medical Register shall notify any transfer of the place of his residence or practice to the Council and to the State Medical Council concerned, within thirty days of such transfer, failing which his right to participate in the election of members to the Council or a State Medical Council shall be liable to be forfeited by order of the Central Government either permanently or for such period as may be specified therein.

The Medical Council of India have given effect to the provisions of the above Sections and has started registration of additional qualifications obtained by a doctor whose name is borne on the Indian Register. All such persons should apply to the 'Registrar, Medical Council of India, Temple Lane, Kotla Road, New Delhi 1' in the prescribed application form and enclose a bank draft of Rs. 10/- payable to the *Secretary, Medical Council of India, Temple Lane, Kotla Road, New Delhi 1* for the registration of additional qualifications held by them.

Doctors are also requested to notify the change if any in the place of residence or practice to this Council and to the State Medical Council concerned immediately.

Unemployed Doctors Demonstrate at Jaipur

Unemployed doctors and students of the local S.M.S. Medical College at Jaipur 'gherao'ed the Union Health Minister, Mr. Dixit, for more than 75 minutes and let him off only after he had given them a patient hearing and an assurance that the Government would direct the Rajasthan Government not to increase the number of seats in the Medical Colleges till the existing unemployment problem among doctors was solved.

A Landmark in Viral Research

A major breakthrough in research on viral hepatitis has been achieved as a result of the discovery of a virus-like agent known as Australia antigen.

The antigen, first detected in the serum of an Australian aborigine, gives virologists and immunologists a very effective tool for pursuing studies on a subject which had reportedly reached a "blind alley" till recently.

At a seminar on the subject, held recently at New Delhi under the auspices of the Indian Council of Medical Research, it was pointed out that as a result of discovery, doctors could now screen blood donors to prevent hepatitis among the recipient of transfusions.

Extensive studies have been planned on the antigen by the Indian Council of Medical Research in connection with investigations on viral hepatitis

Studies on Lead Content in Urine

The lead content in the urine discharge of the urban people is high compared to that of those in rural areas, according to studies conducted by the Bhabha Atomic Research Centre, at Bombay. The studies attributed this phenomenon to the urban population's exposure to air having high lead concentration caused by automobile exhaust. The work by the B.A.R.C. pertained to an estimate of trace elements in human tissues and trace elements intake through vegetables, fruits and drinking water in the country.

Portable Laser Photocoagulator Devised by B.A.R.C.

A portable laser photocoagulator using a ruby laser has been developed by the Bhabha Atomic Research Centre. Its use in the medical field is in the treatment of retinal detachment.

The instrument consists of a handheld laser head fitted with a conventional ophthalmoscope and a power supply unit. Unlike ordinary lasers this unit works with a comparatively lower voltage. A safety feature of the unit is that no portion of the laser beam can enter the ophthalmologist's eye even if the laser is fired accidentally.

Except for the ruby rod and the flashlamp, whose combined value is less than Rs. 3,000, the unit is indigenous.

High power xenon arc lamps have been used for a number of yeras to treat retinal detachment. This treatment, unlike the laser technique, causes pain and discomfort to the patient.

A B.A.R.C. unit functioning at the J J. Hospital for some months tried the laser technique in two cases of macular hole with detachment of retina. The unit was able to seal the holes perfectly and attach the retina successfully.

The technique has been used in ten cases of vitreous haemorrhage and three patients had their vision restored to near normal while the remaining are under treatment.

Deans of Dental Colleges

The Maharashtra State Government has declared the Deans of Government Dental College and Hospital, Nagpur and the Dental College, Byculla, Bombay, as authorised medical attendants for all classes of Government servants and members of their families for taking treatment in Government dental colleges and hospitals.

Hitherto, the Dean of the Government Dental College, Bombay, was the only authorised medical attendant in the State.

Civilian Doctors for Armed Forces Suggested

The Central Council of Health, which recently held a session at Jaipur recommended that doctors in the Services under 45 years, should serve in the Armed Forces for four years if required within the first 10 years of their service. This clause shall be included in the recruitment rules of the State Cadre.

The Council called upon the State Governments to expedite construction of residential quarters for doctors and paramedical personnel quickly to attract them to the rural areas.

To check the large-scale sale of spurious drugs and adulterated food, State Governments were asked to reorganise the drug control and food adulteration machinery. It was agreed that effective check on these malpractices was not possible unless Central assistance was provided to the States to set up analytical laboratories for the purpose.

Non-Surgical Treatment for Appendicitis

China claims to have made another medical breakthrough—that of treating acute abdominal illnesses such as appendicitis and ulcers without resorting to surgery.

Reporting this recently Radio Peking said several hospitals in China have successfully carried out the new "non-surgical treatment" in about 8,000 cases of acute abdominal diseases over the past decade, particularly, acute appendicitis, peritonitis, intestinal obstructions, ulcers, intestinal perforations and gall-stone.

A Striking Feat of Microsurgery

Report of an astonishing piece of micro-surgey carried out in Australia has been received. It involved the successful transplant of a patient's toes to replace fingers he lost in an accident. The Royal Australian College of Surgeons was told that the micro-surgeon joined tiny arteries, veins and nerves of the toes to the corresponding structures on the damaged hand. The surgeon worked under a microscope at times, and had to use minute needles and thread as thin as a spider's web. The actual stitching was so delicate, it had to be done by remote control. The technique was so exacting that as much as one hour had to be spent in joining up one blood vessel.

Dr. Sutherland Gets Nobel Prize for Medicine

Dr. Earl Wilbur Sutherland (55) of Vanderbilt University in Nashville, U.S.A., won the 1971 Noble Prize in Physiology or Medicine for his research in hormones.

The Kansas-born veteran hormone researcher was cited by the Warolinska Medical Institute, which decides the award, for his "discoveries concerning the mechanisms of the action of hormones."

Device to Warn of Heart Attack

A pocket-sized device that can warn its wearer of an impending heart attack hours or even days in advance was displayed recently at the 41st annual symposium on Heart Disease at San Francisco. The miniature electronic instrument is known as the Ventricular Impulse Detector and Alarm (VIDA). The device is based on the principle that certain small irregularties occur in the heart-beat long before a heart attack occurs. Two electrodes placed on the chest monitor the unusual electrical current caused by these irregularities and the device starts emitting a loud bear. The wearer can then call his doctor and transmit through VIDA a complete electrocardiogram.

Handsome Donation of Drugs to P. M.'s National Relief Fund

A donation of essential drugs and medicines valued at over Rs. 5 lakhs was recently made by Pfizer Ltd. to the Prime Minister's National Relief Fund. The donation was made by the Company's Managing Director, Mr. S. V. Pillai to Mrs. Indira Gandhi in New Delhi in the presence of Mr. P. C. Sethi, Minister for Petroleum and Chemicals.

Tamil Nadu Medical Council Election

Sri M. Rajasekaran, Registrar, Tamil Nadu Medical Council and Returning officer for the State's Medical Council elections, informs:

Drs. H. T. Vira Reddy, C. Nathamuni Naidu, K. Rama Rao, K. Virabhadraswami, G. Sriramula, B. Rama Rao and N. Suryanarayanan. have been elected as members of the Tamil Nadu Medical Council, Madras, from amongst the registered practitioners of this State for a term of five years on and from 3rd November 1971.

Materials Invited for Inclusion in the Proposed Publication on Progress of Medical Sciences in India during 1963-72

Dr. J. B. Chatterjea, Director, School of Tropical Medicine, Calcutta 12, has set himself to the task of collecting necessary materials for preparaing a book to document the Progress of Medical Sciences in India during 1963-72. The book will be published towards the end of 1972, when the Indian Science Congress completes 60 years of its glorious existence and celebrates the Diamond Jubilee. The publication will contain a critical review of worthwhile contributions made during the last decade in different disciplines of medicine.

Dr. Chatterjea has invited help from members of the medical profession, medical institutions and research centres, teachers of various departments and research workers in medical sciences to provide him with all relevant data in the broad field of medical sciences in general and in various specialities in particular from the useful work done by workers individually or in groups in this country or abroad. He would appreciate receiving a factual account of the useful contributions supported with complete reference to published work. If possible reprints of important papers may also be sent along with the report from the individual, the department or the institution as the case may be.

Due to the short time at his disposal for completing the task, Dr. Chatterjea has requested all to send in their reports of contributions made in different disciplines of medicine during the last decade *by the end of December 1971* as he intends to complete his preliminary compilation by the end of January 1972. Any further report for inclusion may be sent to him by 15th of January 1972.

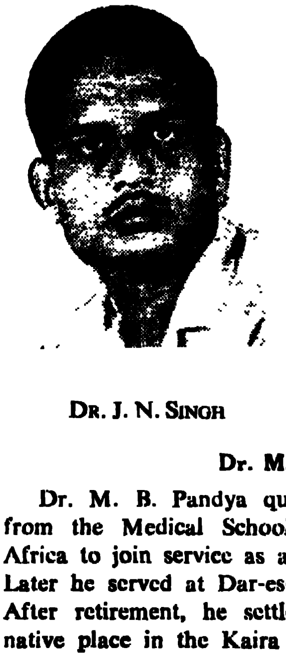
OBITUARIES

Dr. J. N. Singh

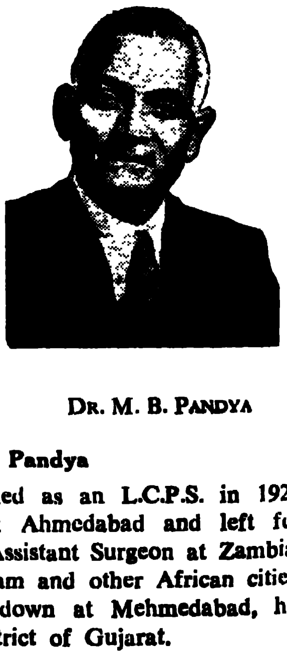
Death took place at the prime of his life of Dr. J. N. Singh, Junior Medical Officer of Bokaro Steel Hospital, on 24-10-71 under tragic circumstances.

Born in 1945 at Biratpur in the Saharsa district of Bihar, Dr. Singh qualified for M.B.B.S. from the Darbhanga Medical College under Bihar University in 1967. After two years of housemanship, he joined the Bokaro Steel Project as Junior Medical Officer. The interest he evinced in the patients' welfare, his unassuming behaviour and his devotion to work endeared him alike to his patients and his colleagues.

Dr. Singh was an active member of the Bokaro Steel City Branch of I.M.A. He is survived by his wife and two children.



DR. J. N. SINGH



DR. M. B. PANDYA

Dr. M. B. Pandya

Dr. M. B. Pandya qualified as an L.C.P.S. in 1925 from the Medical School at Ahmedabad and left for Africa to join service as an Assistant Surgeon at Zambia. Later he served at Dar-es-salam and other African cities. After retirement, he settled down at Mehmedabad, his native place in the Kaira district of Gujarat.

A well known figure of Mehmedabad town, Dr. Pandya was a very active and enthusiastic member of the Mehmedabad Branch of I.M.A. He held the office of Hony. Secretary, Mehmedabad-Kaira Branch of I.M.A. for nine years and used to take keen interest in all activities of the Association.

He passed away on 22-9-71 at the age of 76.

SUPPLEMENT

JOURNAL OF THE INDIAN MEDICAL ASSOCIATION

Vol. 57, No. 11 CALCUTTA December 1, 1971

Association Notes

XLVII All-India Medical Conference, 1971 · Madras Board and Lodging Arrangements for Delegates and Guests

Dr. B. Rama Rau, Organising Secretary, the 47th All-India Medical Conference 1971, Madras, has issued the following for information of all delegates and intending participants of the Conference:

(a) Delegates and their family/guests accompanying them who require board and lodging facilities will be charged Rs. 25/- per day (which includes transport, lodging and board · breakfast, lunch, tea and dinner) per member per day with a minimum of 3 days, that is to say, each delegate and each member accompanying the delegate must pay a minimum of Rs. 75/- per head for a minimum of 3 days. Accommodation will be provided if we get the intimation on or before *10th December, 1971*.

(b) Members, delegates or guests who do not require lodging but who require only board at the campus will be charged Rs. 15/- per day (which includes breakfast, lunch, tea and dinner per day).

(c) If the members of the I.M.A. require accommodation in Hotels, they should write to us (Organising Secretary, 47th All-India Medical Conference, Indian Medical Association, Madras City Branch, 14 Harrigton Road, Chetput, Madras 31) *immediately* and send the necessary mimimum advance of Rs. 50/- per member. We shall then book their hotel accommodation and intimate to them directly as to which hotel they have been accommodated in, with a copy of the intimation to I.M.A. Headquarters.

State Medical Conference

XVII Delhi State Medical Conference : Delhi : 1970

The 17th Delhi State Medical Conference was held at D. M. A. House, Daryaganj, Delhi on December 4-6 1970. Dr. B. S. Murthy, Minister of State for Health, Family Planning, Housing and Urban Development, inaugurated the conference and it was presided over by Dr. L. D. Malhotra. Dr. Mahesh C. Gupta, Chairman of the Reception Committee, welcomed the delegates and the distinguished guests.

An important feature of the conference was the Pharmaceutical and Health Exhibition which was organised with the cooperation of the W.H.O., Directorate of Family Planning, Delhi Administration and leading pharmaceutical concerns in the capital. The exhibition was inaugurated by Dr. P. K. Mishra, Director of Health Services, Delhi.

A Scientific Session was also organised on this occasion. A large number of speakers participated in the symposia and presented papers.

The conference closed with the Open Session followed by the Annual Dinner on 6-12-70.

RESOLUTIONS

The following resolutions were passed at the open session of the Delhi State Medical Conference:

1. QUACKERY:

The 17th Delhi State Medical Conference urges upon the Government to enact suitable legislation for stoppage of quackery and further urges that the use of the prefix "Doctor" be restricted to persons qualified in modern system of medicine or those on whom Doctorate is conferred by a University.

In the interest of the ailing public the use of the words "Registered Medical Practitioners" 'Physician' and 'Surgeon' and 'Doctor' be allowed only to the qualified medical practitioners duly registered under the Medical Council of India Act, 1958 and the practitioners of other systems should specify the system they practice by using the titles such as Ayurved, Homoeopaths, Unani, etc.

2. BETTER MEDICAL RELIEF:

Whereas the interest of the patient is paramount and

Whereas the facilities afforded for medical care fall too short of his needs and

Whereas the expectations of the patients are raised beyond the means provided thereof and

Whereas there is overcrowding in both outdoor and in-patients departments in Hospitals and

Whereas the hospitals are understaffed, under-equipped with drugs and appliances and

Whereas there exists no proper facilities for patients and their attendants resulting in unnecessary delay and

Whereas there is no obvious desire by the authorities to meet the ever expanding needs and

Whereas the ultimate objective of our health plans should be to ensure socialised medicine for one and all irrespective of a few privileged groups and

Whereas the services of medical profession outside the Government can be utilised, therefore be it resolved

That the Government should allot sufficient funds for the health needs to fulfil the expectations of the patients and the community and also utilise in full the professional manpower by providing continuous iutdoor facilities for atleast 8 to 10 hours per day in hospitals with full provisions for investigational facilities and treatment both outdoor and indoors.

3. JUNIOR DOCTORS IN DELHI HOSPITALS:

This conference urges upon the Government to improve the working conditions of doctors working as housesurgeons, registrars and postgraduate students in various Delhi Hospitals. This Association feels that the existing conditions in most of the Hospitals in the city are far below the standard expected of them

Whereas the Delhi Medical Association is the only accredited body of the doctors in Delhi who practise the modern scientific system of medicine and whereas a nominee of the D.M.A. has been representing the medical profession on the Telephone Advisory Committee ever since the T.A.C. constituted in Delhi and

Whereas on the T.A.C. reconstituted last year an official nominee of the Delhi Medical Association has not been taken, the 17th Delhi State Medical Conference urges upon the authorities to include in the reconstituted T.A.C. the duly elected nominee of the Association whose name has already been submitted, as per requisition, to the Secretary of the Telephone Advisory Committee.

5. MEDICAL PRACTICE BY THE UNQUALIFIED PERSONS:

Whereas the menace of quackery is on the increase in the country and medical practice by the unqualified goes on unhampered and

Whereas a recent incident in Moga (Punjab), where a number of children died after administration of Strychnine by a self-styled child specialist, amply proves that medical practice by the unqualified can be a positive danger to the lives of gullible public and

Whereas there are moves afoot to register the unqualified practitioners thereby giving quackery legal sanction and

Whereas it is contemplated to remove the penal clause from the Medical Council of India Act that makes practice by the unqualified a congnisable offence,

Be it resolved that this 17th Delhi State Medical Conference urges upon the Government in the interest of Public Health and Medical Education to take no such steps that regularise practice by the unqualified, thereby perpetuating quackery. It further appeals to the authorities to retain the penal clause in the I.M.C. Act and enforce it rigidly.

6. SHORTAGE OF DRUGS:

Whereas the availability of drugs x-ray films, surgical goods and laboratory equipment is far from satisfactory and

Whereas the market is flooded with sub-standard drugs and

Whereas the strict import restrictions are responsible to some extent for the shortage of these items,

This conference urges upon the authorities to reconsider the question of drugs supply and manufacture of these items both in the private sector and public and appointing a commission as suggested by the Indian Medical Association.

7. ROAD ACCIDENTS:

This conference urges upon the authorities that the present cumbersome and time-consuming procedure adopted by the police at the time of road accidents should be simplified in the interest of the injured and restoration of the smooth flow of traffic.

8. EFFICIENT AMBULANCE SERVICE:

This conference urges upon the authorities of various hospitals and the Municipal authorities to ensure prompt and efficient Ambulance Service to the public of the Metropolitan town of Delhi whenever the need arises.

9. PRIORITY OF CARS TO DOCTORS:

This conference strongly urges upon the Government to give priority to the doctors for purchasing cars and scooters as the same are essential for rendering efficient and immediate medical aid to the sick and needy and it is not an article of luxury for them. The Government is requested to allot a special quota for medical practitioners, registered under the Medical Council of India Act, 1956.

10. CAR PARKING FACILITIES FOR DOCTORS:

This conference urges upon the authorities to grant to the members of the profession the permission to park their cars in front of their clinics and near the residences of the patients when they go to visit the patients in emergency.

11. MEDICAL COUNCIL:

The 17th Delhi State Medical Conference reiterating its earlier resolution urges the Government to constitute a Medical Council for qualified practitioners in the modern system of medicine and a separate registration council for nurses and midwives for Delhi State and other centrally administered areas in the interest of the public and medical profession in Delhi to have its representatives on the Medical Council of India as in the case of rest of the States in India.

Branch Notes

ANDHRA PRADESH STATE BRANCH

The annual report of the State Branch for the year 1969-70 as submitted by Dr. M. Vasudeva Rao before the State Council meeting traced the progress the State Branch had made in its many-sided activities during the year.

There were 35 local branches under it as on 1-10-69. Five of the branches were recommended for suspension for default in payment of H.F.C.; four of these were later revived upon clearing of arrears. The total membership of the branch rose to 1482 (51C) on 30-9-70 from the total of 1384 (44C) as on 1-10-69.

Among the branches which put up a good record of general activities during the year were Nizamabad, Khammam, Vijayawada, Konaseema (Amalapuram), Nalgonda and Machilipatnam. The branches which conducted refresher courses were Hyderabad, Visakhapatnam, Khammam, Nizamabad and Machilipatnam. The highlight of this refresher-course programme was the introduction of "popular lectures" by specialists and authorities on particular subjects. For successfully conducting family planning camp at Gannavaram near Vijayawada the branches concerned earned recognition at State and all-India levels. One noteworthy factor in connection with the Family Planning Programme in the State wsa that the State Government was insisting that any doctor opting to undertake family planning work must be a member of I.M.A. certified to that effect by the local branch and also by the A.P. State Branch of I.M.A. to conduct the Family Planning programme.

The Narsing Rao Memorial Shield for the Best Branch of I.M.A. was presented to Nizamabad Branch it being adjudged the best branch of the year.

The Machilipatnam Branch conducted a free medical check-up of schoolgoing children under the "School Health Programme" and made the scheme popular through its sincere efforts.

Dr. K. K. Datey, renowned Cardiologist from Bombay, delivered the Dr. Yellapragada Subbarao Memorial Oration at Vijayawada at the 12th A.P. Medical Conference. The subject was Recent Advances in the Management of Coronary Heart Diseases.

Dr. Gurumurthy Annual Essay Competitions for the year 1969-70 were conducted on the subject of Pyrexias and Their Management in General Practice. The prize went to Dr. T. T. V. Subramanyeswara Rao.

Arastu Memorial Lecture for the year 1970 was delivered by Dr. V. V. Shah of Bombay on 29-3-70, the subject being Natural History of Coronary Heart Diseases.

The A. P. Faculty of Indian Medical Association College of General Practitioners kept up its activities during 1969-70. The College organised refresher lectures at Visakhapatnam, Khammam, Nizamabad and Machilipatnam and also popular lectures for the benefit of the lay public on diabetes, heart attack, mental disorders, family planning and social paediatrics. Besides, the College ran for the benefit of the public a poly-clinic, a family planning clinic and a diabetic clinic with an attached laboratory.

The Rotary Club of Hyderabad and the Lions' Club made donations to the College for free distribution of polio drops and triple antigen. It became one of the very popular centres for immunisation in the 'Twin Cities.' The College instituted a gold medal to be awarded to general practitioners for outstanding individual or collective contribution in the field of clinical or non-clinical research, to commemorate the memory of late Col. Waghrey.

The report also stated that Major M. G. Naidu Memorial Library attached to the State Branch was being replenished with latest books on medicine, surgery and midwifery for use and benefit of poor and deserving students in the 'Twin Cities.' It was becoming popular with both undergraduate and postgraduate medical students.

BENGAL STATE BRANCH

Amtala Branch - The 4th annual meeting was held on 22-11-70 with Dr. G. C Paul in the chair. After condoling the demise of Dr. C. V. Raman the house heard the annual report presented by the Hony. Secretary.

The Hony. Secretary reported that the branch had 51 members on the roll.It had 5 general and 4 zonal meetings besides a special general meeting where urgent problems facing the profession were discussed. The members of the branch took active part in mobilising support for the All Bengal Doctors Convention held at Mahajati Sadan, Calcutta, on 3-5-70. They joined the silent demonstration to the State Governor on the E.S.I. Demands Day. By wearing protest badges, distributing posters and leaflets and holding meetings they observed the Cease-Work Programme on 1-8-70 to make the public aware of the problem of assaults on doctors and to urge the Government to take necessary steps. The branch contributed Rs. 25/- to the Fighting Fund of the I.M.A. (Central), besides raising Rs. 295/- for the Demands Day and Rs. 154·50 for the Cease-Work Programme. It observed the Health Week by conducting a free health examination of students, free eye test and free urine examination of patients and mass immunisation campaign, bsides organising a health exhibition, a baby show and a socio-medical conference. The branch also took an active role in selling T.B. seals and rendering medical and other relief to the flood-affected people in about 55 villages under Bishnupur P.S. of 24 Parganas district. Some progress was also made by the branch in securing a plot of land in the vicinity of Amtala for building its own house.

The Hony. Secretary's report was appreciated by the members. Drs. T. P. Ghosh, I. B. Ghosh, P. K. Bhattacharjee, K. N. Roy and T. Kansari took part in the discussion on various points of the report whereupon the report was adopted by the house.

It was decided to fix the annual subscription as Rs. 24/- for ordinary members and Rs. 12/- for associate members.

The following were elected office-bearers for 1970-71:

President—Dr. Kartik Ch. Kapat; Senior Vice-President — Dr. Tarapada Ghosh ;Vice-President Dr Benode Behari Chakraborty and Dr. Badal Chandra Patra; Hony. Secretary—Dr. Jagat Kr. Das: Assistant Secretaries—Dr. Monoranjan Mondal, Dr. Pabitra Kr. Bhattacherjee and Dr. Anath Bandhu Bhandari; Treasurer -Dr. Syed Atiar Rahman: Auditor—Dr. Gajendra Nath Mondal; Representatives to State Council -Drs. Jagat Kr. Das, Indubhusan Ghosh, Khagendra Nath Roy and Monoranjan Mondal; Representative to Central Council—Dr. Jagat Kr. Das; Members of Executive Committee-Drs. Sasanka Sekhar Mukherjee, Sudhir Kr. Hazra, Ranjit Kr. Biswas, Umakanta Banu and Umapada Hazra.

Andul Branch - During the unprecedented floods in September-October, 1970 which caused havoc to a large number of Blocks in Howrah district, members of the branch readily responded to the call of suffering humanity and extended their helping hands to bring succour and relief to them. The branch supplied medicines to the B.D.O., Sankrail, on his request for free distribution among the flood-stricken people. On its own initiative it opened nine medical centres in the affected areas, each of which was manned by two doctors and a compounder. About 1,200 people were inoculated against cholera and nearly 2,500 people were treated for various other ailments. The branch got unstinted cooperation from all quarters, namely local medical practitioners, chemists and druggists and Bengal Medical Relief Centre, who most generously came forward with abundant supply of medicines and other necessary articles. Treatment of post-flood diseases like asthma, hepatitis, anaemia, dysentery, bronchits, etc., was also undertaken and foodstuffs rich in protein and vitamin contents were distributed as a precaution against outbreak of diseases from undernourishment.

Dum Dum Branch—The annual general meeting was held on 29-11-70, Dr. P. C. Ghosh, presiding. At the outset a resolution condoling the death of Dr. Ajit Kumar Paul of Midnapore, who was brutally murdered on 30-10-70 in front of his nursing home at Midnapore was passed.

The house next adopted the annual report and the statement of accounts presented by the Hony. Secretary. The following were elected office-bearers for the session 1970-71:

President- Dr. P. K. Guha; Vice-Presidents—Drs. Sontosh Kumar Sen, Sudhir Das, N. L. Sen Gupta and Nirmal Kumar Bose; Hony. Secretary - Dr. Pabitra Mohan Roy; Joint Secretary and Treasurer--Dr. Sailendra Nath Sen Gupta: Assistant Secretaries—Dr. Amal Kanti Dutta Sarma and Dr. Sankar Mohan Sen; Secretary, E.S.I. Standing Committee—Dr. Jaladhar Debnath; Representative to Central Council Dr. P. K. Guha; Representatives to State Council -Drs. P. M. Roy, Sailendra Nath Sen Gupta, Jaladhar Debnath and Nirmal Kumar Bose.

Later, Dr. Pijush Kanti Dutta delivered a lecture on Peptic Ulcer and Gastric Ulcer.

Howrah Branch - The annual general meeting was held on 15-11-70 at Dr. Sarat Kumar Das Memorial Hall of Howrah Medical Club. Dr. Debi Prosad Mukherjee, President of the branch, took the chair.

At the outset homage was paid to the memory of Dr. Deb Kumar Das and Dr. Sudhansu Kr. Sarkar, two popular members of the branch who recently passed away. Dr. Dinabandhu Banerjee, Hony. Secretary, then placed the annual report for 1969-70 indicating an all-round progress of the branch. The membership strength of the branch was 275 including 19 new members. The branch effectively participated in the E.S.I. Convention jointly organised by the State Branch of I.M.A., E.S.I. Medical Association and A.I.M.L.A. at Mahajati Sadan, Calcutta on 7-2-70. It also joined the All Bengal Doctor's Convention on 3-5-71 where strong demands were voiced for adequate measures to stop assaults and intimidations on doctors. In observance of the E.S.I. Demands Day on 1-7-70 a large number of members of the branch joined the silent march to the Governor and Rs. 700/- was collected for the Demands Day programme. The branch also successfully observed the programme for Protest Day and Cease-Work in protest of assaults on doctors. Dr. Satyendu Kundu of the branch was entrusted with the convenership of all Bengal Action Committee. The branch contributed Rs. 724/- to the Protest Day fund.

Two members attended the Reorientation Course on Family Planning organised by I.M.A. Headquarters and three others attended the Family Planning Training organised jointly by Bengal State Branch and the State Government.

The branch observed Health Week by implementing a programme, the special features of which were a Swasthya Mela and exhibitions on public health, leprosy, tuberculosis and cancer. It gave a special emphasis on leprosy control campaign and joined the new Howrah District Branch of Hind Kust Nibaran Sangh.

The members of the branch rendered relief to the flood-stricken people in different areas of the Howrah district during August-September. They distributed medicines, dry-foods and extended emergency services whenever necessary.

The above report of the Hony. Secretary was adopted by the house. The election of office-bearers for 1970-71 next took place. The following were declared elected:

President — Dr. Debi Prosad Mukherjee; Vice-Presidents — Dr. Damodar Dutta, Dr. Sachindranath Sahana and Dr. Sisir Kumar Sen; Hony. Secretary—Dr. Dinabandhu Banerjee; Joint Secretaries - Dr. Anil Kundu, Dr. Nakuleswar Halder and Dr. Debabrata Paul; Members of the Executive Committee—Drs. Sudhir Chandra De, Basudeb Maitra, Joy Krishna Mondal, Aditya Prosad Chatterjee, (Mrs.) Susama Mal, Shyama Prosad Dutta, Paritosh Banerjee, Chittaranjan Hazra, Bholanath Banerjee, Sunil Kumar Mitra, Panchanan Mookerjee and Chinmoy Gupta; Representatives to State Council—Drs. Dinabandhu Banerjee, Damodar Dutta, Satyendu Kundu, Binoyendranath Mukherjee, Bibhuti Bhusan Das, Sudhir Chandra De and Debi Prosad Mukherjee; Representatives to Central Council—Dr. Dinabandhu Banerjee, Dr. Debi Prosad Mukherjee and Dr. Sisir Kumar Sen; Alternate Representatives —Dr. Dandapani Banerjee, Dr. Dhruba Ranjan Sarkar and Dr. Biral Chand Mullick.

Jagatdal Branch—The annual meeting was held on 28-11-70 at Bhatpara High School. Dr. H. S. Guha took the chair. At the outset the members paid their homage to the memory of Dr. K. Sarbadhikary, Dr. Himadri Sarkar and Dr. Ajit Paul of Midnapore.

Dr. H. P. Roy Chowdhury presented the annual report. According his report eight new members were enrolled during the year. Five general meetings and two Working Committee meetings were held during the year. The presence of Dr. Deben Ghosh, State Joint Secretary, in three of these meetings encouraged the members. Dr. Bhabesh Lahiri, an eminent gynaecologist from Calcutta was the speaker at a clinical meeting organised by the branch.

With the help of the State Branch, the members rendered relief to the riot-affected areas at Jagatdal and the flood-stricken people in some areas of the 24-Parganas. The branch observed E.S.I. Demands Day on 1-7-70 and took part in the 'Cease Work' on 1-8-70

The following were elected office-bearers for the year 1970-71:

President — Dr. Atul Chandra Chakraborty; Vice-Presidents—Dr. Shyamsundar Mukherjee, Dr. H. S. Guha and Dr. B. K. Mukherjee; Hony. Secretary—Dr. H. P. Roy Chowdhury; Joint Secretaries—Drs. J. P. Mukherjee, K. P. Mukherjee, P. K. Dutta, Sukumar Ghosh and S. C. Chatterjee; Treasurer—Dr. S. C. Chatterjee: Representatives to the State Council—Dr. A. K. Banerjee. Dr. P. K. Roy, Dr. P. Sthanpati and Dr. D. Sen Gupta; Representative to Central Council—Dr. P. Sinha; Auditor —Dr. P. Sinha; Cultural Secretary—Dr. P. K. Roy.

Kalyani Branch—A meeting was held on 27-11-70 at the Doctor's Recreation Club Hall of Kanchrapara T.B. Hospital. Dr. S. K. Mitra presided.

The Hony. General Secretary, Dr. S. Majumdar, presented the annual accounts for the year 1969-70, which was passed after a brief discussion. Dr. Majumdar requested all members of the branch to participate in the drive for enrolment of new members.

Dr. Gour Mohan Das De of Kalyani spoke on Newer Aspects of Surgery on Urinary Bladder. A discussion followed in which Drs. S. K. Mitra, S. Majumdar, R. N. Kundu and S. Chakrabory took part.

Midnapore Branch—At a meeting held on 3-11-70 members recorded their deep sorrow at the sad and sudden demise of Dr. Ardhendu Chowdhury, an ex-member of the branch.

The meeting also strongly condemned the dastardly outrage by miscreants on Dr. Ajit Kumar Paul, an ardent member of the Association, who succumbed to the injuries inflicted on him. A resolution conveying the profound sorrow of members at the demise of Dr. Pal in the prime of his life was passed.

Members present observed two minutes silence standing as a mark of respect to the departed souls.

The annual general meeting was held on 28-11-70. The following were elected office-bearers for the year 1970-71:

President—Dr. N. R. Santra; Vice-Presidents—Dr. N N. Das, Dr. K. C. Mullick and Dr. M. Dutta; Hony. Secretary -Dr. P. K. Sen Gupta; Joint Secretaries—Dr. B. R. Sarker and Dr. A. B. Mandal; Treasurer—Dr. K. Khamroi; Auditor—Dr. D. N. Sinha; Representative to Central Council—Dr. P. K. Sen Gupta; Representatives to State Council—Drs. A. K. Pramanik, P. K. Sen Gupta, M. N. Das and R. L. Das.

Naihati Branch — The annual general meeting was held on 15-11-70 with Dr. (Mrs.) Kamala Bose in the chair. The Hony. Secretary, Dr. Binoy K. Das presented the annual report for 1969-70.

The branch had 54 members on the roll. During the year under review the branch effectively participated in the programmes for vindicating the just demands of the profession. It observed Cease-Work on 1-8-70 in protest of the incidents of assaults and intimidations on doctors. An amount of Rs. 150/- was contributed by the members to make the programme a success. The branch opened three units on the cease-work day—one at Dr. K. S Ghosh's dispensary, one at Hazinagar and the third at Dr. R. N. Chatterjee's clinic at Naihati—for free treatment of acute cases. The branch also befittingly observed the E.S.I. Demands Day and contributed Rs. 325 for successful observance of the programme.

Members of the branch rendered medical relief to the victims of natural calamity during September-October, 1970. For about a fortnight medical aid was catered to the affected people who had taken shelter in the local schools and R. B. College. Some members also went to several flood-affected areas of the adjoining Hooghly district to render medical aid to the ailing people.

On behalf of the branch one member attended the refresher courses on Children's Diseases and Family Planing Orientation Course, organised by the State Branch and four members applied for fellowship of the College of General Practitioners.

The Secretary's report was adopted.

The following were elected office-bearers for 1970-71:

President—Dr. S. Chakraborty; Vice-Presidents—Drs B. N. Sadhukhan, K. S. Ghosh, (Mrs.) T. Mukherjee, R C. Roy and S. N. Ghosh; General Secretary—Dr. B. B Biswas; Assistant Secretaries — Dr. Shyamal Chatterjee, Dr. Mira Pal and Dr. Shyamal Ghosh; Representatives to State Council—Drs. K. S. Ghosh, B. N. Sadhukhan, R. C. Roy and B. B. Biswas; Representative to Central Council — Dr. Niranjan Ghosh; Treasurer — Dr. B. K. Das; Auditor—Dr. R. N. Chatterjee.

Rajganj Branch—A general meeting was held on 25-11-70 under the presidentship of Dr. Nilmoni Bhattacharjee at the residence of Dr. Manas Ranjan Maity of Banipur. The following were elected office-bearers for the year 1970-71:

President — Ds. Subas Chandra Banerjee; Vice-Presidents—Drs. Sree Kumar Paul, Dayal Hari De Sarkar, Nilmoni Bhattacharjee and Profulla K. Banerjee, Hony. Secretary—Dr. Adhar Chandra Das; Treasurer—Dr. Bijoy Krishna Biswas; Representatives to State Council—Dr. Bijoy Kr. Das and Dr. Adhar Chandra Das; Representative to Central Council—Dr. Manas Ranjan Maity.

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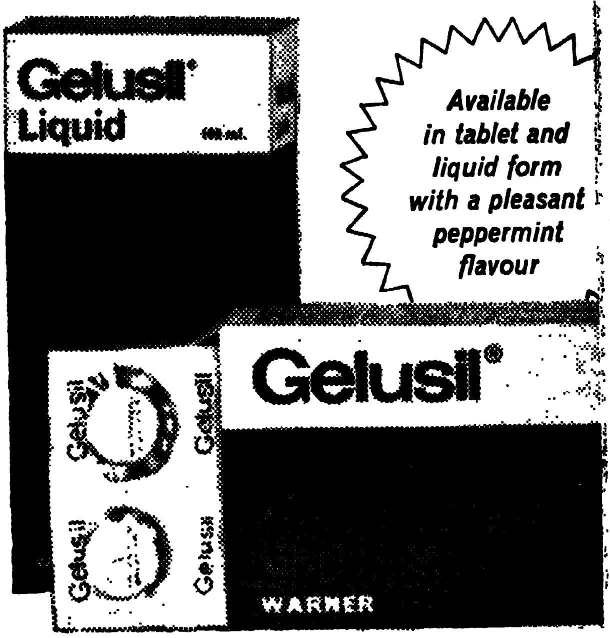

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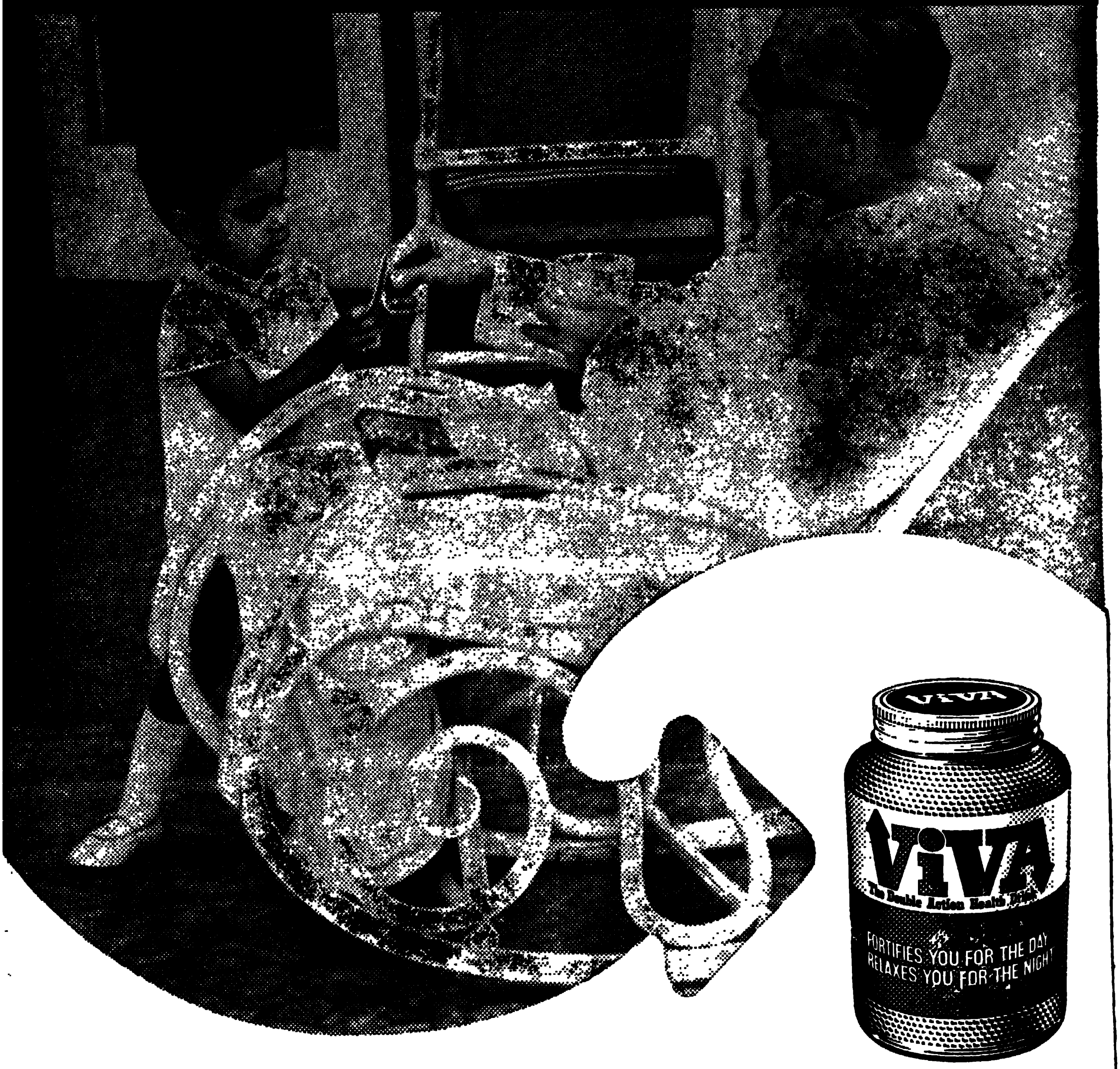
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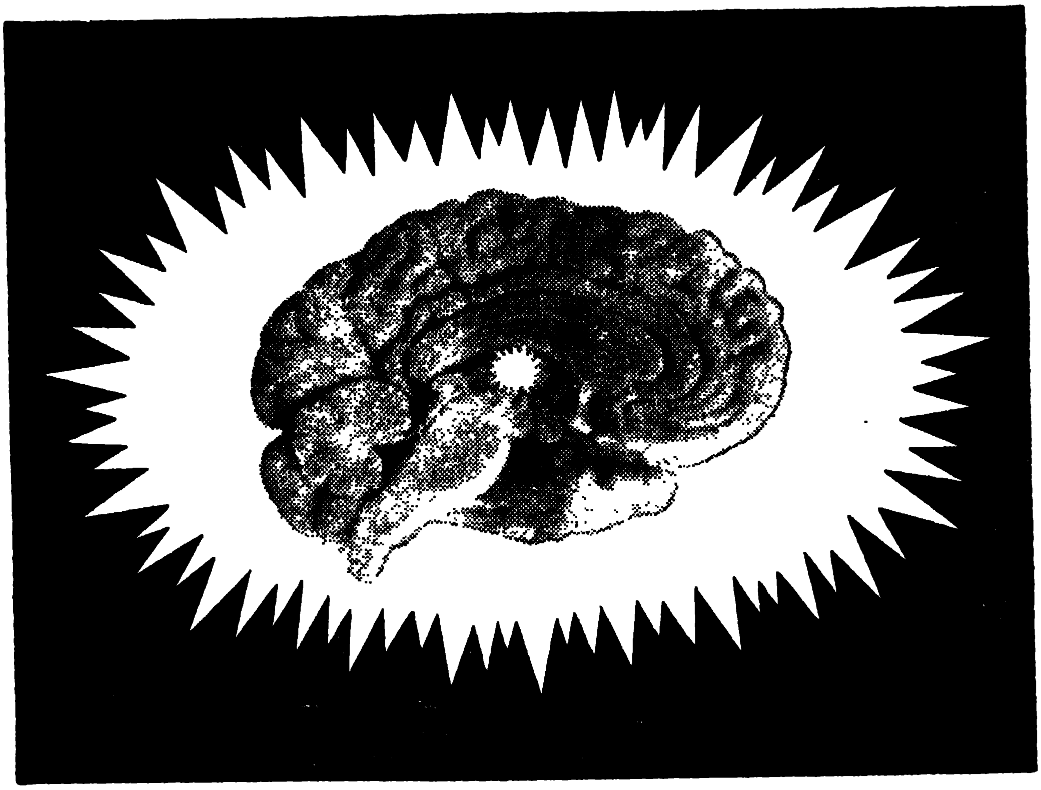

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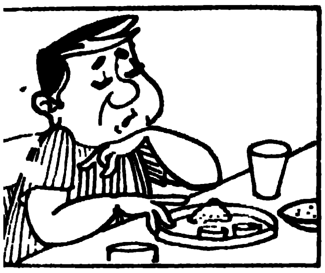

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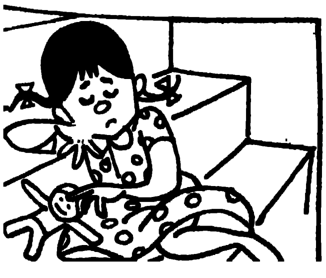

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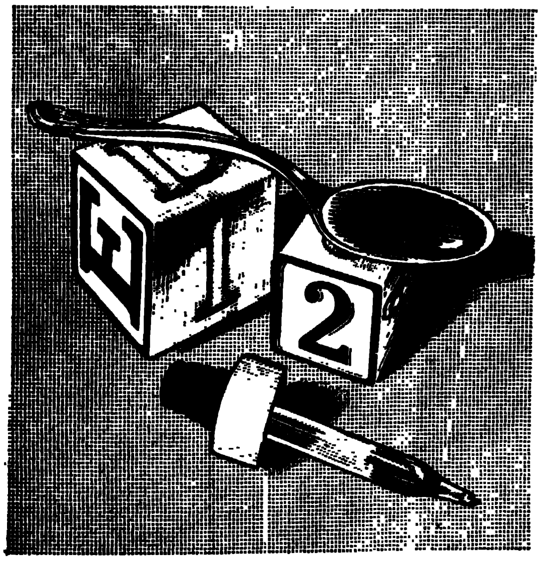

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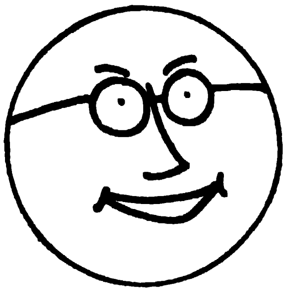

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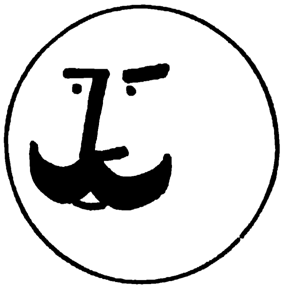

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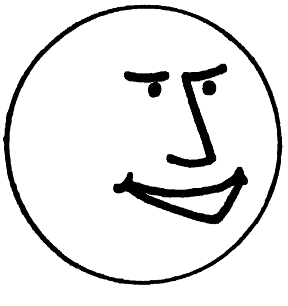

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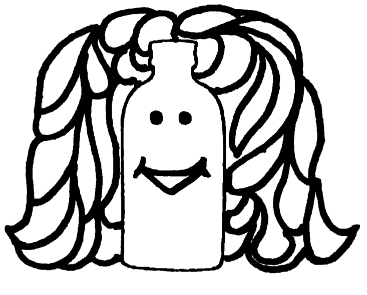

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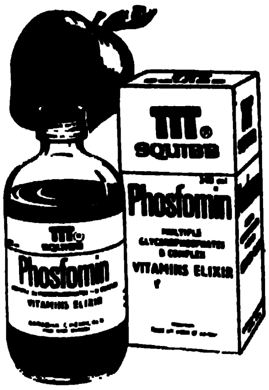

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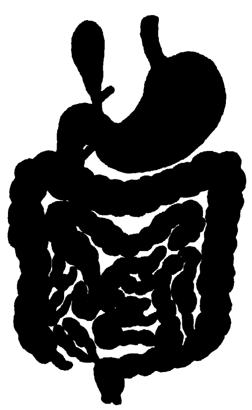

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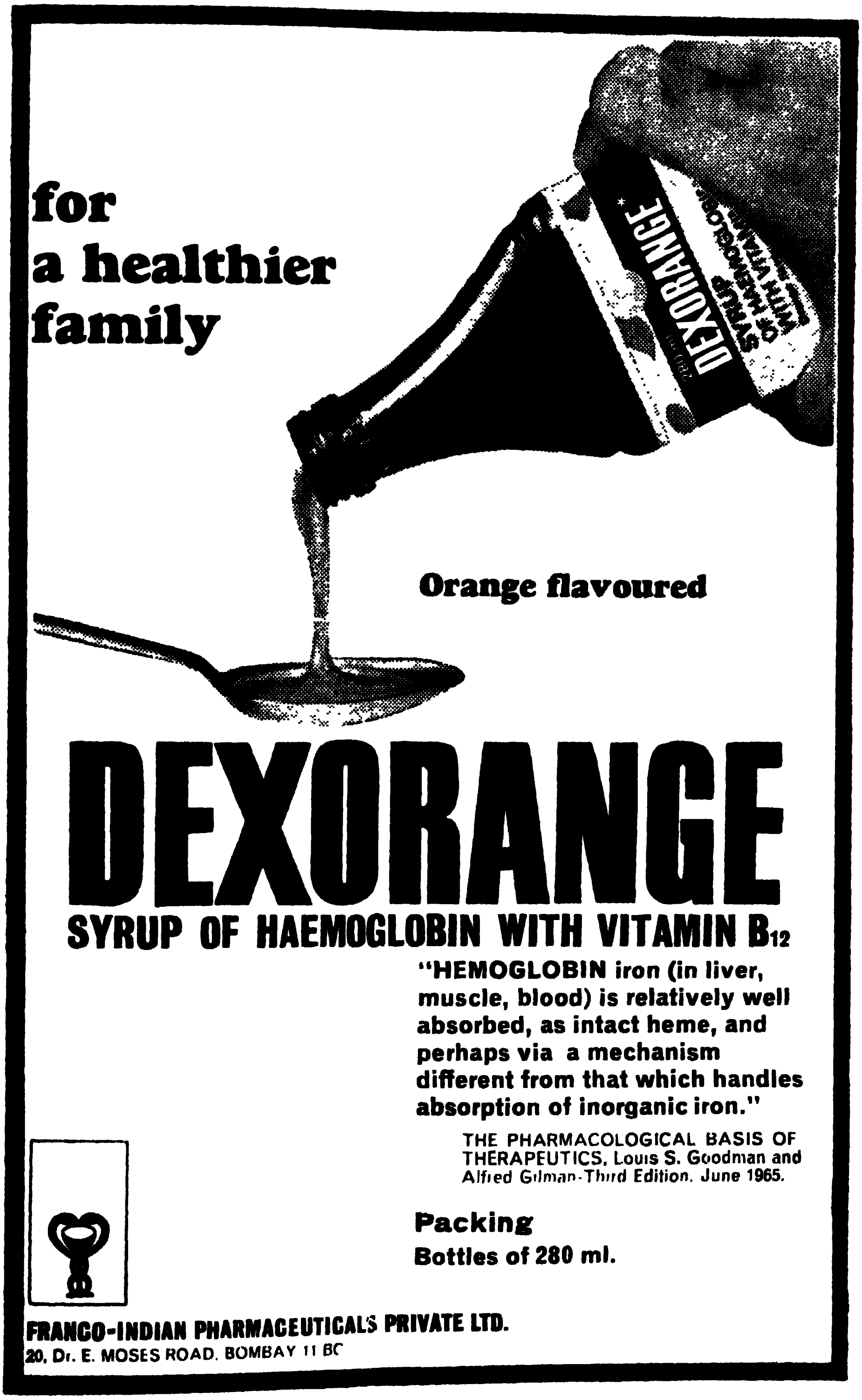

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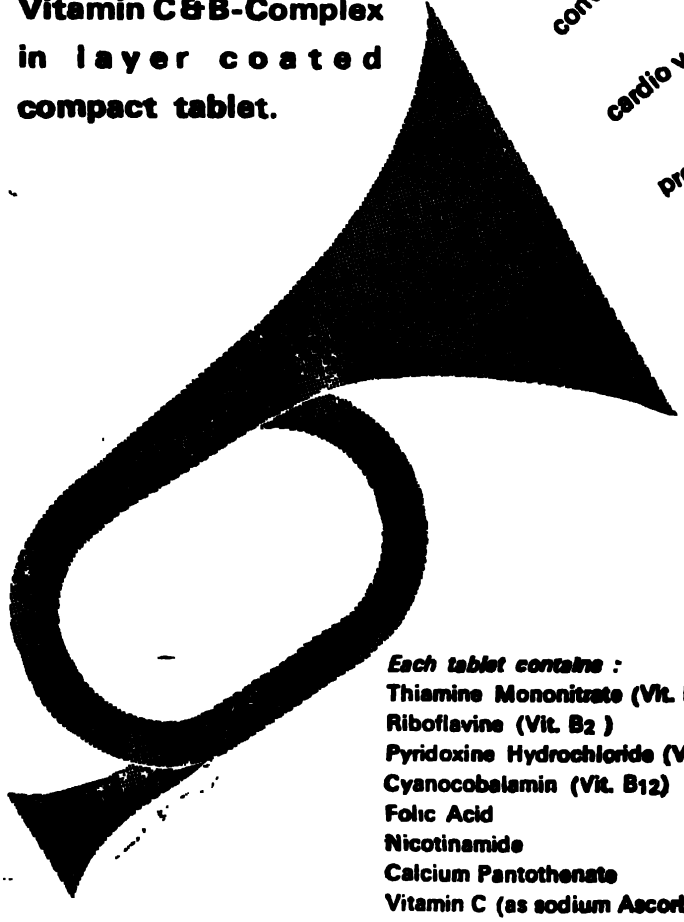

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DECEMBER 16, 1971

ORIGINALS AND PAPERS

1

ABO Blood Groups and Susceptibility to Diseases

P. C. HURKAT*, S. R. MITTAL**, SOM NATH GUPTA***

[Received for publication July 20, 1970]

Buchanan and Higley (1921) from Mayo Clinic were the first to have attempted to find out a relationship between ABO blood groups and susceptibility to diseases. They conducted their study on 2,446 patients, but failed to find out any positive relationship between blood groups and diseases ; but it is now conceded that if their data are analysed retrospectively, they give quite a strong indication of two associations now known to exist : namely, those between group O and duodenal ulcer and between group A and pernicious anaemia. The discovery of an association between cancer of the stomach and blood group A made by Aird *et al.* (1953) brought to life the whole subject of association of blood groups to diseases once again.

Since then, much work has been done in the field and there are conflicting reports by various authors, mainly because such studies have been done on selected number of cases and also because there are other complex and partly unknown environmental factors.

Clarke *et al.* (1956) found that duodenal ulceration is more common in non-secretors than it is in secretors. Struthers (1951) found that bronchopneumonia in infants was more in A group persons, while Carter and Heslop (1957) found negative results. Clarke *et al.* (1955) and Koster *et al.* (1955) found that persons belonging to blood group O have high gastric actidity, and that they are more prone to gastric ulceration. Similarly, Callender *et al.* (1957) found a positive relationship between blood group A and pernicious anaemia, while McConnell *et al.* (1956) found evidence that diabetes mellitus is commoner in people of group A. Pike and Dickens (1954) reported marked preponderance of toxaemia of pregnancy in blood group A females. Helmbold (1958) found the association of blood group A with cancer uterus to be higher than in group O. Mitra *et al.* (1962) and Rotkin (1965) reported lack of association between ABO groups and patients with cancer of the cervix, while Gupta (1968) found a high incidence of cancer cervix in persons belonging to blood group A. Matousek (cited by Gold-Feder and Fershing, 1937) studied blood groups in 200 female patients with malignancy breast and found that persons belonging to blood group O suffer more from it, while Aird *et al.* (1954) did not find any relationship. Mitra *et al.* (*loc. cit.*) and Shah (1966) did not find any relationship between ABO blood groups and cancer breast. Majupuria *et al.* (1966) and Mitall and Bansal (1970) found a significant increased incidence of group O individuals in patients with carcinoma breast.

Alexander (1921) first reported on the distribution of ABO blood groups in 50 cases of malignant growths and concluded that group B and AB were

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** M.B.B.S., Rotary Houseman
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susceptible to various forms of neoplasms and that group O were stable and resistant. He also noticed that neoplasms occurring in O and A groups were of low malignancy and long duration.

There are also certain reports which showed no specific relationship between blood groups and incidence of malignancy. Mayo and Ferguson (1953) found no significant relationship between blood groups and various gastrointestinal diseases, including 935 cases of carcinoma. Similarly, no appreciable change in distribution of ABO blood groups was noticed in cases of cancer colon, breast and bronchus by Aird *et al.* (1954) and lung cancer by McConnell *et al.* (1954).

From the foregoing it may be said that from the data and informations hitherto available there seems to be no positive relationship between blood groups and susceptibility to various diseases; but negative results are important too. However, if such a relationship between blood group and diseases can be established beyond reasonable doubt it may be conceded that the presence of a particular blood group or gene or antigen has somehow increased the susceptibility to the disease or failed to give protection from it. But for such a generalisation a large study, on a large number of individuals going into lacs for each disease, and that too at different places is essential, which is physically impossible for a single or a group of individuals.

The purpose of this article is to put on record our findings of ABO blood group distribution in different diseases with respect to that of control, with an assumption that more such information shall be forthcoming and when such data are pooled together on some later date, they can give clear and final answer to this problem.

MATERIAL AND METHOD

Blood groups from patients with various diseases mentioned were studied in patients admitted in the inpatient department of J.L.N. Hospital were examined for ABO blood groups. The blood grouping was performed with high titre sera A and B by slide method, in case of doubt it was [illegible]ed by test-tube method. The study was conducted on 2165 patients.

To establish "Norm" an ABO blood group study was done in 8988 subjects of both sexes which included blood donors, relatives of patients, hospital staff, medical students, Jawans of the Indian army and C.R.P. and voluntary donors of blood during the Chinese attack of 1962 and of Pakistan in 1965.

RESULTS AND DISCUSSION

The distribution of ABO blood groups in 8988 apparently normal subjects was studied. B group was most prevalent amounting to 3456 persons (38·45 per cent) followed by O group with 3041

TABLE 1—SHOWING DIFFERENTIAL FREQUENCIES OF VARIOUS DISEASES WITH RESPECT TO ABO BLOOD GROUPS

Name	Blood group A		Blood group B		Blood group AB		Blood group O	
	No. of cases	Difference from control	No. of cases	Difference from control	No. of cases	Difference from control	No. of cases	Difference from control
A Control	1962		3456		529		3041	
B Diseases								
(a) Cancers								
Anorectal	11	+ 0·17	20	+ 1·54	2	− 1·89	17	+ 0·16
Urinary bladders	2	−14·14	14	+15·39	0	− 5·88	10	+ 4·63
Breast	30	+ 9·75	26	−11·08	11	+ 5·69	28	− 4·36
Caecum	2	− 1·83	1	−28·45	1	+ 4·12	6	+26·17
Cervix	15	− 0·99	35	+10·17	3	− 1·72	19	− 7·44
Colon	4	+ 6·75	3	−17·02	2	+ 8·41	5	+ 1·89
Uterus	2	− 1·83	5	+11·55	0	− 5·88	3	− 3·83
Lung	3	+ 3·17	4	− 5·12	3	+19·12	2	−17·17
Oropharynx	8	+14·54	8	− 2·08	0	− 5·88	6	− 6·55
Ovary	2	−10·72	6	− 5·11	6	+27·46	4	−11·61
Penis	5	+ 3·17	9	+ 6·55	2	+ 4·12	4	−13·83
Stomach	5	− 7·12	18	+14·49	2	—	9	− 7·37
Leukaemia	10	− 6·67	29	+ 5·49	1	− 4·37	26	+ 5·58
Oesophagus	2	+ 3·17	3	− 0·95	1	+ 6·62	2	− 8·83
(b) Diseases of women	151		255		34		226	
(c) Tuberculosis	92		171		31		139	
(d) Peptic ulcers	30		38		14		72	
(e) Calculi	53		152		28		72	
(f) Enlarged prostrate	88		152		28		109	

persons (33·83 per cent). Group A had 1962 persons (21·83 per cent) followed by group AB which had 529 persons (5·88 per cent).

The frequency of ABO blood groups in different diseases in comparison with that of control are given in Table 1, and these results do not speak out anything very clearly, except that malignancy is slightly common in blood groups AB and B, but as amplified earlier, our sole purpose of this communication is that when more such data shall be available in the record and when they shall be compiled or pooled together after a resonable lapse of time, they shall give some very useful but final answer to the problem.

SUMMARY AND CONCLUSION

8988 normal persons were examined for ABO blood grouping. The percentage distribution for group A, B, O and AB were 21·83 per cent, 38·45 per cent, 33·83 per cent and 5·88 per cent respectively.

There is no positive relationship between various diseases and ABO blood groups, except that malignancy is slightly more common in blood group AB and B.

ACKNOWLEDGMENT

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2

Relation of ABO Blood Groups to Duodenal Ulcer and Bleeding

ARABINDA MITRA*

[Received for publication September 9, 1970]

Aird *et al.* (1954) found a positive association between peptic ulcer and blood group O, the incidence of this blood group being larger in duodenal ulcer than in the general population. A number of subsequent studies have confirmed this relationship. Recent investigations show that the association between group O and liability to peptic ulcer may in whole or part be explained by a stronger association between blood group O and bleeding. Merikas *et al.* (1966) and Horwich *et al.* (1966) found that while a higher proportion of patients with gastric and duodenal ulcer were of group O than in the general population, the incidence of group O was even higher in patients with gastric and duodenal ulcers which had bled.

In this paper, a study is made into the relationship of ABO blood groups to bleeding, sex distribution and maximal acid output in 113 duodenal ulcer patients treated in this hospital.

MATERIAL AND METHOD

A total of 113 consecutive cases of duodenal ulcer, subsequently proved at operation, was studied.

Tagore Hospital, Dandakaranya Project, Kondagaon, Dist. Bastar, Madhya Pradesh

* M.B.B.S., F.R.C.S. (Edin.), Surgeon

TABLE 1—SHOWING RELATION OF BLOOD GROUPS TO DUODENAL ULCER

Blood group	All patients requiring blood transfusion		Duodenal ulcer				
			All cases		Bleeding		Relative incidence of bleeding
	No. of cases	Per cent	No. of cases	Per cent	No. of cases	Per cent	Per cent
O	76	31·80	37	32·79	17	47·22	43·23
A	61	25·52	17	15·05	3	8·33	17·64
B	79	33·05	43	38·10	11	30·56	25·58
AB	23	9·63	16	14·06	5	13·89	31·25
Total	239	100·00	113	100·00	36	100·00	31·85

88 patients were Bengali refugees from East Pakistan, resettled in Dandakaranya, and 25 were from Madhya Pradesh and Orissa. There were only 20 female patients among these, forming 17·7 per cent of the total. 36 patients had a history of haematemesis and/or melaena.

In all these cases, ABO blood groups were determined and the augmented histamine test (Kay, 1953) was carried out. Rh type and ABH secretor status could not be determined due to lack of facilities. The distribution of ABO blood groups among all patients requiring blood transfusion was calculated, to obtain the blood group distribution of the cross section of the population admitted in this hospital.

RESULTS

It is seen from Table 1 that the blood group distribution among all cases of duodenal ulcer and all patients requiring blood transfusion was similar, except a lower incidence of group A and a higher incidence of group AB among the duodenal ulcer patients; but groups A and AB taken together constituted only about 30 per cent of all duodenal ulcer cases.

The incidence of group O was markedly higher in cases with haematemesis and/or melaena. The incidence of group A was markedly low, but the number of cases was too small for a satisfactory evaluation.

The relative incidence of bleeding (Table 1) shows that the patients of duodenal ulcer belonging to group O were much more likely to bleed than those belonging to group B (43·23 per cent as against 25·58 per cent). These two groups constituted more than two-thirds of all cases of duodenal ulceration.

Though the number was rather small, it was found that among females, the incidence of group O was higher in patients with bleeding than in all cases taken together (Table 2). The incidence of group O in all cases of duodenal ulcer was also higher in females.

TABLE 2—SHOWING DISTRIBUTION OF FEMALE PATIENTS

Blood group	Duodenal ulcer			
	All cases		Bleeding	
	No. of cases	Per cent	No. of cases	Per cent
O	8	40·00	4	57·14
A	4	20·00	2	28·58
B	5	25·00	0	0·00
AB	3	15·00	1	14·28
Total	20	100·00	7	100·00

There were no significant association between blood group and maximal acid output in duodenal ulcer with or without bleeding except in groups A and AB, which, as previously noted, formed less than one-third of the total cases (Table 3).

TABLE 3—SHOWING RELATION OF BLOOD GROUP TO AUGMENTED HISTAMINE RESPONSE

Blood group	Duodenal ulcer			
	All cases		Bleeding	
	No. of cases	Mean maximal acid output (mEq./Hr.)	No. of cases	Mean maximal acid output (mEq./Hr.)
O	37	15·69	17	15·75
A	17	10·07	3	7·60
B	43	14·78	11	14·41
AB	16	15·69	5	20·02

DISCUSSION

In the present study, except among a relatively small number of female patients, the incidence of blood group O was not found to be higher in duodenal ulcer patients than in the cross section of the general population admitted to this hospital, whereas a definite higher incidence was found in cases which had a history of haematemesis and/or melaena.

Attempts have been made to explain the higher incidence of duodenal ulcer among group O subjects by determining the mean parietal cell mass (corresponding to the mean maximal response to histamine) in the different blood groups. Ventzke and Grossman (1962) could not find any relation between blood groups and maximal acid output, nor was it found in the present study.

It has been noted that a smaller proportion of duodnal ulcer patients secrete ABH substances in their saliva and gastric juice (Clarke *et al.*, 1959), and it has been postulated that these blood group substances, being mucoprotein in nature, protect the gastric mucosa against acid and pepsin (Truelove and Reynell, 1963). ABH secretor status could not be ascertained in the present series; Horwich *et al.* (*loc. cit.*), however, could not find any difference between the relative proportions of secretors and nonsecretors among the duodenal ulcer patients who had bled and those who had not.

Now, the question is whether the association between blood group O and duodenal ulcer is a direct one, or can be explained by an association between blood group O and a tendency to bleed. In the present series, the latter seems to be the case.

Jick *et al.* (1969) reported a deficit of blood group O among patients suffering from venous thrombo-embolism. It is possible that group O subjects have a deficiency of a coagulation factor or possess an anticoagulant factor in their blood, which prevents thrombo-embolism. They may thus have a greater tendency to bleed than persons belonging to other blood groups. On the other hand, Evans *et al.* (1968) could find no association between group O blood and menorrhagia.

Further research in this line will be very interesting.

SUMMARY

133 cases of proved duodenal ulcer were studied. 36 had a history of haematemesis and/or melaena. No group O preponderance was found among the duodenal ulcer patients taken as a whole, but a definite group O preponderance was found among the ulcer patients who had bled. The number of female patients (total 20, bleeding 7) was small, but group O was the largest group, irrespective of the history of bleeding. There was no significant difference of the maximal acid output in the different blood groups. The question is raised whether the association of blood groups to duodenal ulcer can be explained by an association of blood groups to bleeding.

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3

ABO Blood Groups in Different Diseases

SANGRAM KESHARI NAYAK*

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Relationship between ABO blood groups and susceptibility to different diseases has been studied in the past by various authors. But the number of diseases studied are few and far between. Many workers have been encouraged to enter into this field. Roberts (1957) studied associations between ABO blood groups and various diseases which comprised peptic ulcer, gastric ulcer, pernicious anaemia, diabetes mellitus and toxaemia of pregnancy. The aim of these observations is to point out the genetic factors, if any, which are operating in the disease processes.

Aird *et al.* (1953) studied blood groups in 1046 cases of cancer stomach from north London; 1340 from London; 478 from Scotland; and 704 cases from Basle. Aird *et al.* (1953) suggested the in-

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creased frequency of cancer stomach in persons with blood group A. A similar finding was also confirmed by Buckwalter *et al.* (1961). Aird *et al.* (1953) also were of the opinion that the frequency of blood group O in peptic ulcer is more.

But certain workers found no significant relationship between blood groups and various gastro-intestinal diseases. No appreciable change in the distribution of ABO blood groups was noticed in cases of cancer colon, breast and bronchus (Aird *et al.*, 1954) and of lung cancer (McConnel *et al.*, 1954). Not much work has been done in our country regarding the susceptibility of various diseases among different ABO group individuals. The present study was carried out to find out the frequency of ABO blood groups in cases of some common diseases like peptic ulcer, carcinoma stomach, benign enlargement of the prostate, tuberculosis, cancer cervix and leukaemia because the blood groups, genes, or antigen may somehow increase the susceptibility to the disease or failed to give protection from it.

MATERIAL AND METHOD

In the present study blood samples from patients of different diseases admitted to the different departments of MKCG Medical College Hospital were examined for ABO blood groups. Blood samples from the patients suffering from tuberculosis were also collected at the outpatient departmnet of T. B. isolation centre here and from Tibetan refugees residing at Chandragiri camp. All the cases were diagnosed either pre-operatively or postoperatively or after suitable investigations pertaining to the disease. The blood grouping was done by fresh samples of hight titre of anti-A and anti-B sera by slide agglutination technique at room temperature. The cases were studied during the period from 1963 to 1970 August.

OBSERVATIONS

2032 patients consisting of peptic ulcer, carcinoma stomach, tuberculosis, benign enlargement of the prostate, carcinoma cervix and leukaemia were studied for ABO blood grouping. Out of 881 cases of peptic ulcer, the frequency of ABO blood group is shown in Table 1.

TABLE 1—SHOWING THE ABO BLOOD GROUPS IN PEPTIC ULCER

Blood group	No of cases	Percentage
A	46	5·2
B	339	38·5
O	493	56·0
AB	3	0·3
Total	881	100·00

The various authors in India even vary in their opinion regarding the frequency of ABO blood groups in peptic ulcer (Table 2).

TABLE 2—SHOWING THE INCIDENCE OF BLOOD GROUPS IN PEPTIC ULCER IN VARIOUS STUDIES

Observer	O	A	B	AB
Chuttani *et al.* (1964)	25%	22·22%	50%	2·77%
Raghavan (1962) ...	35%	25%	28%	12%
Mathur *et al.* (1969)	43%	20%	31%	6%
Present series ...	56·0%	5·2%	38·5%	0·3%

Out of 151 cases of carcinoma stomach, the incidence of ABO blood groups (Table 3) were:

TABLE 3—SHOWING ABO BLOOD GROUPS IN CARCINOMA STOMACH

Blood group	No. of cases	Percentage
A	113	74·8
B	15	10·0
O	19	12·6
AB	4	2·6
Total	151	100·00

Group O—19 cases (12·6 per cent); Group B—15 cases (10·0 per cent); Group A—113 cases (74·8 per cent); Group AB—4 cases (2·6 per cent).

The total number of cases of tuberculosis studied were 649. The number and percentage of different blood groups in this disease is shown in Table 4. The observation shows a higher incidence of group O and group B in order of frequency.

TABLE 4—SHOWING THE INCIDENCE OF ABO BLOOD GROUPS IN TUBERCULOSIS

Blood group	No. of cases	Percentage
A	43	6·6
B	292	45·0
O	309	47·6
AB	5	0·8

It seems that the incidence of blood groups in benign enlargement of prostate has not been reported. As this is not an uncommon condition so we tried to elicit some relationship between this disease and ABO blood groups (Table 5). Here the incidence of group B was maximum (56·00 per cent).

TABLE 5—SHOWING THE INCIDENCE OF ABO BLOOD GROUPS IN BENIGN ENLARGEMENT OF PROSTATE

Blood group	No. of cases	Percentage
A	12	8·00
B	84	56·00
O	42	28·00
AB	12	8·00
Total	150	100·00

Out of 117 cases of leukaemia studied here we found 46 cases in group A, 29 cases in group B, 39 cases in group O and 3 cases in group AB (Table 6).

TABLE 6—SHOWING THE INCIDENCE OF ABO BLOOD GROUPS IN LEUKAEMIA

Blood group	No. of cases	Percentage
A	46	39·3
B	29	24·8
O	39	33·3
AB	3	2·6
Total	117	100·00

Carcinoma cervix accounts for one of the common malignant conditions in gynaecology. The incidence of ABO blood groups in this disease was also studied and the results are depicted in Table 7.

TABLE 7—SHOWING THE INCIDENCE OF ABO BLOOD GROUPS IN CARCINOMA CERVIX

Blood group	No. of cases	Percentage
A	41	44·6
B	25	27·2
O	18	19·6
AB	8	8·6
Total	92	100·00

DISCUSSION

Aird *et al.* (1954) and Clark *et al.* (1955) found the increased frequency of duodenal ulcer towards the blood group O in their radiological material. According to Roberts (*loc. cit.*) subjects of group O have (40 per cent) higher liability to duodenal ulcer than those who belong to other ABO groups. According to Shah and Singh (1969) out of 220 cases of peptic ulcer the incidence of group O was 96, group B in 80, group A in 32, group AB in 12. Similarly, Amir Chand from New Delhi reported that the risk of duodenal ulcer among group O persons is approximately 1.4 times than the other blood groups; although Ghosh *et al.* (*loc. cit.*) and Raghavan (*loc. cit.*) found no relation between blood groups and peptic ulcer from Calcutta and Bombay respectively.

The number of peptic ulcer patients having blood group O has been found to be maximum (56.0 per cent) in the present series. The peptic ulcer patients here comprise of duodenal ulcer, gastric ulcer and pyloric stenosis as a whole. The high distribution of blood group O among these patients reported by Aird *et al.* (1953), Roberts (*loc. cit.*), Mathur (*loc. cit.*), Shah and Singh (*loc. cit.*) conforms to the present series.

In the present series there is preponderance of group A in carcinoma stomach patients which corresponds to the result of Roberts (*loc. cit.*) who claims that the proportion between A and other blood groups in this disease is 1.2:1.0. Although Aird *et al.* (1953) established the high incidence of blood group A some other workers give opposing evidences. In our study of 151 cases of carcinoma stomach group A comes to be 113 (74.8 per cent) reaching the maximum limit.

As there is little literature about the incidence of ABO groups in tuberculosis, we lack the comparison of our results. According to the present study there is preponderance of blood groups O and B in tuberculosis as compared to other blood groups.

There is a definitely increased incidence of group B (56 per cent) in benign enlargement of the prostate as studied by us in our part of the country. As the number of cases studied by us is few, we request further studies over this problem. As regards leukaemia the incidence of group A is maximum (39.3 per cent) as compared to other blood groups. In relation to carcinoma of the cervix, the incidence of blood group A is also high (44.6 per cent) in our part, although according to Tyagi group B headed the list. Similarly, Mitra *et al.* (1962) in a series of 521 cases failed to establish any relationship. According to Gupta (1968), out of 208 cases of cancer cervix, group A accounts for 77 cases (37.02 per cent), group B for 69 cases (33.17 per cent), group O for 49 cases (23.56 per cent), and group AB for 13 cases (6.25 per cent).

SUMMARY

ABO blood groups were studied on 2032 patients out of which 881 were peptic ulcer, 151 were carcinoma stomach, 649 were tuberculosis, 150 were benign enlargement of the prostate, 117 were leukaemia, 92 were carcinoma cervix. Highest distribution of blood group was group O found in 56.0 per cent of cases of peptic ulcer. As regards malignant conditions like carcinoma stomach, leukaemia and carcinoma cervix, the group A headed the list securing 74.8 per cent, 39.3 per cent, 44.6 per cent respectively. There is definite prepondarance of group A in these three malignant conditions.

As regards tuberculosis, the frequency of blood groups O and B are almost at equal level. In benign enlargement of the prostate the incidence of group B is definitely at a higher level (56 per cent).

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4

ABO Blood Groups and Rheumatic Diseases in the Population of North Bihar

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Despite intensive research and investigations all over the world, rheumatic diseases have eluded solution. The exact aetiology still remains obscure and much confusion still prevails. Though one thing has now been definitely established that haemolytic streptococci group A infection of the upper respiratory tract precedes the attack of rheumatic fever, there is no evidence, however, that the organism is present in the lesions of the disease nor that the organism is immediately responsible for any of its manifestations. Further, one individual develops the disease after the preceding infection whilst another does not.

Various immunological and host factors were incriminated and Wilson and Lubschez (1944) even postulated a hereditary susceptibility through a single recessive gene on the basis of their study covering 112 families. The possibility of highly increased incidence of rheumatic fever in a sibling, whose even one parent was affected, was observed by Stevenson and Cheeseman (1959).

How exactly genetics determined the development of the disease has yet remained obscure. Glynn and Halborow (1952) postulated a hypothesis that streptococci possibly converted the blood group substances to antigens, which led to the causation of rheumatic pathology.

The present work has been undertaken to study the relationship of rheumatic disease and ABO blood group, if any, in this populous area of North Bihar, which represents an amalgam of many ethnic groups.

MATERIAL AND METHOD

Patients, who attended the Darbhanga Medical College Hospital, the premier institution of North Bihar, formed the study group, and included representatives from both sexes. A total of 222 cases were studied, who had either rheumatic fever, rheumatic heart disease, chorea, rheumatoid arthritis or systemic lupus erythematosus.

The diagnosis in these cases was on clinical grounds, though available clinical and laboratory investigations, like, erythrocyte sedimentation rate, total and differential white cell count, C-reactive protein, electrocardiogram, Rose-Waaler test and L.E. cell phenomenon were done where indicated to group these cases.

The selection of cases of rheumatic fever was made by the modified Jone's criteria (W.H.O., 1967).

The diagnosis of rheumatic fever was considered probable only if at least one major and two minor manifestations and/or two major manifestations were present.

Cases of rheumatoid arthritis were selected and diagnosis established according to the diagnostic criteria as laid down by the American Rheumatism Association (Hollander *et al.*, 1960).

The diagnosis of chorea, rheumatic heart disease and systemic lupus erythematosus presented little

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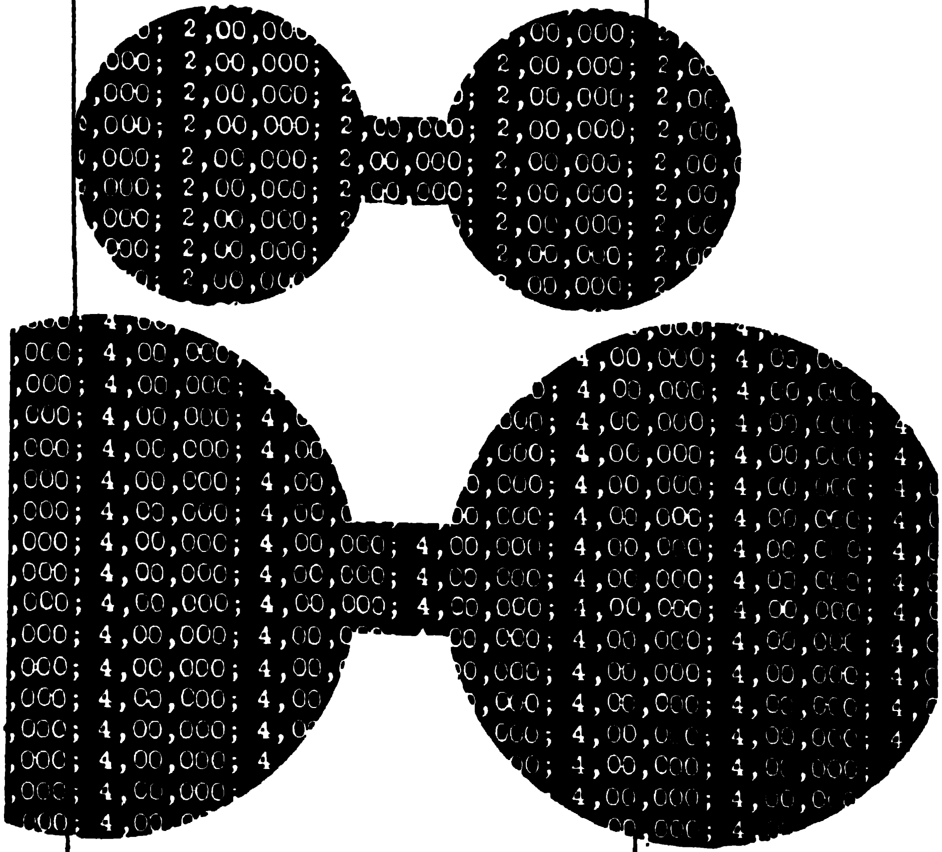

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difficulty and were sorted out on clinical and laboratory data.

In this study, cases of rheumatic fever, rheumatic heart disease and chorea have been taken to mean rheumatic disease while cases of rheumatoid arthritis and systemic lupus erythematosus together constituted the collagen group. The collected data for the latter group being small, statistical evaluation for the latter group was not considered prudent.

ABO blood group of control series covered cases of three thousand donors at the blood bank of Darbhanga Medical College and this represented a fair distribution of the population. The blood grouping of the disease series was carried out at the blood bank and compared with the control group for purposes of computation and statistical evaluation. Table 1 shows the distribution in control and disease series and their percentage.

TABLE 1—SHOWING ABO BLOOD GROUPS AND PERCENTAGE IN CONTROL AND PATIENTS WITH RHEUMATIC DISEASES

Blood group	O	A	B	AB	Total
Control	992 (33·06)	644 (21·46)	1113 (37·12)	251 (8·36)	3000
Rheumatic disease	52 (25·74)	55 (27·23)	76 (37·62)	19 (9·41)	202
Other collagen disease	6 (30)	4 (20)	8 (40)	2 (10)	20
Total of cases	1050	703	1197	272	3222

In Table 2, the incidence of the disease in patients of group A, B, AB and combined non-O-relative to the incidence in group O persons determined from blood group frequencies in patients and control is indicated (relative incidence or RI). When employing data from Table 1 and using Woolf's method, chi-square (χ^2) values were obtained by this method and the probability values (P-value) determined by the method advocated by Fisher and Yates (1953).

TABLE 2—SHOWING RELATIVE INCIDENCE (RI) BASED ON BLOOD GROUP FREQUENCIES IN PATIENTS OF RHEUMATIC DISEASE AND CONTROL AND χ^2 VALUES USING WOOLF'S METHOD

Group compared	R.I. and χ^2 values	Probability or P-value
Group A to O ...	RI—1·63 χ^2—3·08	0·10
Group B to O ...	RI—1·38 χ^2—1·43	0·30
Group AB to O ...	RI—1·44 χ^2—1·56	0·30
Group Non-O to O ...	RI—1·43 χ^2—4·37	0·05

OBSERVATIONS AND COMMENTS

A significant P-value ($P > 0.05$) was observed only when non-O group was collectively tested against O group, the RI and χ^2 values respectively being 1.43 and 4.37. But when each group was tested individually against the control none proved significant, except that the blood group A seemed to have greater susceptibility than other groups.

Evidence of association between ABO blood groups and rheumatic diseases or of an ABO blood group "effect" characterised by increased susceptibility to this disease in persons of blood group A and a relatively marked resistance thereto in person of group O has been observed by other workers (Buckwalter *et al.*, 1962; Walsh and Kooptzoff, 1956).

Clarke *et al.* (1960), Khattab and Ismail (1960) Buckwalter *et al.* (*loc. cit.*) also found similar results in their series. It is interesting to record, however, that investigators like Maxted (1940), Addis (1959) and Pham-Huu-Trung *et al.* (1961) could not find any association of the disease with ABO blood groups.

Whether or not, immunochemical and/or genetic factors determine the evolution of rheumatic disease in a person or that he has a predisposition in the wake of streptococcal throat infection is not the scope of this work and can only be answered by more elaborate and extensive investigation. The works of Glynn and Halborow (*loc. cit.*) and Haverkorn *et al.* (1963) are significant in this regard.

The statistical data, in the authors' series, however, indicate increased predisposition to rheumatic diseases in persons of group A and resistance to the disease in persons of blood group O.

SUMMARY AND CONCLUSION

The statistical significance of ABO blood group and rheumatic disease was studied and a total of 202 cases with rheumatic disease incorporated in this study were compared with blood group of 3000 donors as control.

The increased susceptibility in persons of blood group A and a relative resistance to rheumatic diseases in persons of blood group O was observed. This fact was more clarified when combined non-O group was studied in comparison to blood group O. The P-value was significant ($P > 0.05$).

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5

Incidence of Blood Groups in Kurnool District of Andhra Pradesh

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The studies on the distribution of blood groups in the different parts of the world were undertaken by Mourant and Kopec (1958). Reports on ABO groups distribution in our country were contributed by a number of workers (Mitra, 1933 ; Das Gupta and Chatterjea, 1955 ; Dutta and Mathew, 1966 ; Tyagi, 1968, Shankar, 1967 ; Mishra *et al.*, 1968). The present study of incidence of ABO and Rh groups has been carried out in certain parts of Andhra Pradesh which comprise of people in Rayalaseema area, especially around Kurnool District. Though studies have been made on the blood groups of Andhra Pradesh by Thayuman (cited by Tyagi, *loc. cit.*), no published reports are available on the distribution of groups in this particular part of Rayalaseema area.

MATERIAL AND METHOD

The present study was done on the distribution of ABO and Rh groups amongst certain people of Cuddapah, Kurnool and Anantapur Districts of Rayalaseema of Andhra Pradesh mainly those who attended the Kurnool Medical College. The cases were of different age groups and communities including certain tribal people in the hilly areas around Kurnool. Rh and ABO blood typing was done by rapid slide agglutination method using high titre anti-D, anti-A, anti-B and anti-O sera at room temperature.

OBSERVATIONS

ABO grouping was done in about 1076 males and 510 females. The percentage of O group was maximum. The frequency of B group was more than that of A group, A-B group being least (Table 1).

TABLE I—SHOWING SEXWISE DISTRIBUTION OF DIFFERENT BLOOD GROUPS

Blood group	Male (%)	Female (%)
A	228 (21·55)	99 (19·4)
B	354 (33·75)	171 (33·4)
AB	42 (3·7)	24 (4·7)
O	452 (42·0)	216 (42·35)

Rh typing was carried in 88 cases in general hospital. 10 were Rh negative and the rest were Rh positive amongst both sexes.

DISCUSSION

In the present series O group has been found to be maximum (42 per cent) which is more than that of Thayuman (cited by Tyagi, *loc. cit.*). Nayak *et al.* (1970) also have reported the high incidence of O group in Andhra Pradesh and in areas near Orissa. Similarly in South India, high incidence of O group has been reported by Sundaranjan (cited by Mourant and Kopec, *loc. cit.*) from Madras and Shankar (*loc. cit.*) from Mysore.

The incidence of B group (33 per cent) was next to O group. This again seems to be the same as anywhere in South India. While in Northern part of India it is different and B group dominates over O group (Table 2).

The incidence of A group being same all over India whether South or North (Table 2), peculiarly enough, the ABO group distribution among the people of Kashmir and Assam is like that of South India.

Persons with negative Rh typing are less as compared to the positive Rh type as has been

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TABLE 2—SHOWING INCIDENCE OF DIFFERENT BLOOD GROUPS IN VARIOUS PARTS OF INDIA

State	Authors	No. of cases	Blood group per cent			
			A	B	O	AB
Kashmir	Ananda and Chander Kanta (1963)	3,450	27·1	29·5	35·9	7·5
Andhra Pradesh	Thayuman (cited by Tyagi, 1968)	25,000	22·0	33·0	38·0	7·0
Madras	Sundaranjan (cited by Mourant and Kopec, 1958)	2,382	21·42	33·25	37·70	7·64
Mysore	Shankar (1967)	2,865	25·1	30·7	38·7	5·5
Western Orissa	Mishra *et al.* (1968)	2,988	20·1	38·6	40·21	1·1
South Orissa	Nayak *et al.* (1970)	3,529	16·74	35·05	45·37	2·88
Bengal	Sen *et al.* (1959)	2,200	22·32	37·18	33·09	7·41
Bihar	Gupta (cited by Nayak *et al.*, 1970)	9,257	21·5	38·36	31·43	8·66
Uttar Pradesh	Tyagi (1968)	13,105	23·44	37·21	31·31	8·04
Madhya Pradesh	Gupta (1964)	4,720	24·0	36·2	30·9	8·9
Punjab	Talwar and Sawhney (1958)	10,000	21·1	38·1	31·6	8·2
Gujarat	Majumdar and Kishen (cited by Mourant and Kopec, 1958)	2,481	25·59	32·61	31·36	10·44
Maharashtra	Dutt and Mathew (1966)	7,965	26·5	34·0	29·6	9·9
Assam	Mitra (1933)	2,000	24·55	32·55	33·65	9·25

observed. Yet the percentage of Rh negative typing is nearly 5 in Kurnool district. The number of cases studied are less and requires further survey for a definite conclusion.

SUMMARY

ABO distribution was studied in 1076 males and 510 females. Irrespective of sex, it was found that O group had highest distribution in South India ; B being the next in order similar to Kashmir and Assam. While in the Northern parts of India B group dominated over O group.

ACKNOWLEDGMENT

Our thanks are due to Dr. G. Lakshmana Prasad, Blood Bank Officer, Government General Hospital, Kurnool (A.P.) for his help.

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PRACTITIONERS' SERIES

Toxic Reactions to Local Analgesic Drugs and Their Management†

M. T. BHATIA*

Complications of local analgesic drugs are uncommon but not rare. Incidence of complications varies with different local analgesic solutions. Most toxic being cocaine, cinchocaine and among the least toxic being lignocaine and newer agents like prilocaine and mepivacaine. However, it must be emphasised at the beginning that 99 per cent of these reactions are usually due to errors of technique and overdosage : only 1 per cent of reactions are anaphylactic or allergic in nature (Moore, 1967). Most toxic reactions to local analgesic drugs occur usually 5-10 minutes after injection or topical application. If a reaction does not develop within 30 minutes of the injection or topical application, it is not likely to develop at all (Cullen, 1961).

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TABLE 1—SHOWING COMMON SIGNS AND SYMPTOMS ASSOCIATED WITH OVERDOSAGE

Phase	Central nervous system	Circulatory system	Respiratory system
Stimulating phase (early)	Excitement, apprehension or other symptoms of emotional instability Sudden headache Nausea or vomiting Twitchings of small muscles, particularly of face, finger, etc.	Pulse varies, slowing of pulse more common than an increase Either an elevation or fall in blood pressure but a change does occur Pallor of skin	Increased respiratory rate and depth
Stimulation phase (advanced)	Convulsions	Cardiovascular collapse with fall of blood pressure	Cyanosis, dyspnoea, and rapid respiration
Depressed phase	Paralysis of muscles Loss of reflexes Unconsciousness	Circulatory failure	Respiratory failure and ashen grey cyanosis

TABLE 2—SHOWING TYPES OF ALLERGIC RESPONSES TO LOCAL ANALGESIC DRUGS (AFTER CRIEP AND RIBERIO, 1953)

Type of reaction	Central and other effects	Circulatory system	Respiratory system	Remarks
Immediate idiosyncracy type	Syncope Skin lesion (contact dermatitis)	Pallor, bradycardia (occasionally tachycardia) hypotension with low pulse pressure	Respiratory depression uncommon	Repeated skin contact with local analgesic drugs (as can occur in dental practice) may also lead to contact dermatitis
Immediate anaphylactoid type	Progressive drowsiness	Pallor, feeble and slow pulse	Dypnoea and cyanosis	This type of response can occur after second injection or application of the local analgesic drug
Immediate atopic type	Urticaria, sometimes angioneurotic oedema	Usually associated with bradycardia	Sudden bronchospasm and cyanosis	This type of respone to local analgesic drug occurs in persons having hereditary allergy
Delayed serum sickness type	Fever, lymph node enlargement, urticaria	No effect	No effect	This type of response may be delayed to 10-12 days after first injection of the local analgesic drug

CAUSES

Causes of toxic reactions to local analgesic drugs can be divided into two main groups : (A) Overdosage (B) Allergic response.

Causes of overdosage of local analgesic drugs are:

1. Injection of excessive quantities of local analgesic drug at one single time.
2. Accidental intravascular injection of the drug.
3. Injection of concentrated stock or topical solution by mistake.
4. Use of toxic local anaesthetic drug having low margin of safety.
5. Injection of drug in highly vascular areas without addition of vasoconstrictor agents.
6. Topical application of excessive quantities or concentrated solutions to mucous membranes.
7. Use of average dosage in patients, who have low tolerance due to other systemic diseases.

Signs and symptoms—Usually overdosage of local analgesic drugs results in first stimulation and then depression of the central nervous system. However, signs vary from patient to patient. The common sequence of events in these patients are shown in Table 1.

DISCUSSION

Local analgesic drugs produce first stimulation then depression of the cerebral cortex. Patient usually manifests anxiety, confusion, excitement and then twitching and convulsions. Depression of cerebral cortex rapidly follows or may even accompany stimulation and results in loss of consciousness, flaccidity and later respiratory depression and fall of blood pressure due to associated depression of the medulla oblongata. Death in such patients usually occurs from respiratory failure (Wylie and Churchill-Davidson, 1970). Local analgesic drugs also produce peripheral vasodilatation and direct depression of heart resulting in further fall of blood pressure or even cardiac arrest. Bronchospasm, skin lesions like contact dermatitis and urticaria though uncommon may also occur due to allergic state.

Psychomotor reactions associated with use of local analgesics should not be confused with toxic reactions of these drugs. Fainting, sweating and bradycardia due to vasovagal syndrome in an unprepared patient should be kept in mind. Such cases can be easily differentiated from toxic reactions by checking that blood pressure, pulse and respiration which remain normal and eye lid reflex is present even after fainting. Also adrenaline or any other vasopressor mixed with local analgesic drug may lead to tachycardia and rise in blood pressure. Consciousness is not affected in such response.

Allergic responses being rare, systemic toxic reactions to local analgesics should be treated as cases of overdosage of these drugs unless otherwise diagnosed.

MANAGEMENT

Aims of therapy are:

1. Treatment of signs and symptoms of over stimulation of the cerebral cortex (e.g., convulsions).
2. To combat tissue hypoxia by maintaining air way and giving oxygen to the patient.
3. Treatment of depression of cerebral cortex and medullary centres which follows or may accompany stimulation phase.
4. Maintaining of adequate tissue circulation by raising and maintaining adequate blood pressure.

Treatment of the toxic reaction to local analgesic drugs depends on the signs and symptoms exhibited by the patient. Patient who exhibit only mental changes do not require any treatment. However, the injection or topical application of the local analgesic drug should be immediately discontinued and preparation should be made for treatment of the severe reaction if it occurs. Following specific management is usually required in severe toxic reactions:

Airway and oxygen therapy—Airway is likely to be blocked in the patients after they become unconscious by falling back of the tongue or by blood or vomitus. Blood and vomitus is aspirated and airway is kept clear by supporting the chin. Later, pharyngeal airway or an endotracheal tube is introduced.

Oxygen should be administered as soon as possible to these patients to combat tissue hypoxia. Due to over stimulation, oxygen requirements of the cortical and medullary centres are much raised and it is hypoxia that is probably responsible for circulatory collapse and death in these patients (Wylie and Churchill-Davidson, *loc. cit.*).

Convulsions—Initial treatment of convulsions is oxygen therapy as oxygen alone may stop the convulsion of minor cerebral stimulation (Moore, 1967). If convulsions persist, then succinylcholine 40 mg. or similar muscle relaxant drug is given intravenously. Short acting barbiturate like pentothal or thiopental 50-100 mg. can also be used to stop convulsions. Whatever the drug used, adequate respiration should be maintained by giving artificial respiration.

Adequate respiration—Respiration is likely to be inadequate in these patients due to depression of medullary centre by local analgesic drugs or by drugs used to stop convulsions. Maintaining of adequate respiration by expired air or mouth-to-mouth respiration or by some apparatus like air-resuscitator bag or air-viva bag is usually required. Later, patient can be maintained on artificial respiration by using automatic ventilator or anaesthesia trolley if necessary.

Maintenance of blood pressure—Cardiovascular or circulatory collapse is usually present following local analgesic reactions. Initially this should be treated by starting intravenous 5 per cent glucose drip. However, if hypotension of severe degree is present (systolic blood pressure being below 70 mm. Hg) then methylamphetamine 10 mg. or ephedrine 16 mg. may be given intravenously. However, if hypotension is persistent then IV drip of noradrenaline or mephentermine may be required. Hydrocortisone 100 mg. given intravenously will help in combating shock as well as any allergic reaction.

If cardiac arrest occurs due to sudden cardiovascular as well as peripheral circulatory collapse, then closed chest external cardiac massage should be undertaken without delay. Sternum should be compressed at least 60 times per minute. Repeated intracardiac injection of 4-6 ml. of 1 : 10,000 adrenaline and electrical defibrillation for ventricular fibrillation may be also required.

PRECAUTIONS

Allergic reactions to local analgesic drugs can be prevented to certain extent by eliciting history of allergy to same or other drugs and by giving test dose. However, toxic reactions occurring due to a high blood level of a local analgesic drug can be reduced to a great extent by undertaking the following precautions :

Adequate preparation of the patient—Proper history and prior systemic examination of patient is essential before undertaking local analgesia. Patient should be explained the procedure in details and if necessary small amount of barbiturate or tranquiliser drug may be given as premedication. Atropine should be avoided as a premedication in these patients.

Add vasoconstrictor drug—Adding of minute amount (1:4 lac dilution) of vasoconstrictor drug like adrenaline to the local analgesic solution will prevent rapid absorption of the drug and will reduce toxicity and prolong the action of the local analgesic drugs. Use of vasoconstrictor drug will also combat to certain extent hypotension due to vasomotor disturbances caused by local analgesic drug (Adriani, 1954). However, tachycardia and hypertension may occur if vasoconstrictor drug is used in higher dilution.

Avoid overdosage As a rule only least toxic local analgesic drugs like lignocaine should be used. Only weakest effective concentration and least volume of these drugs should be used to avoid exceeding the recommended total dosage. Accurate measurement of the injected or topically applied volume is necessary to avoid overdosage.

Aspiration—Aspiration of the tissues before injecting any local analgesic solution is essential to avoid intravascular injection. Aspiration should be undertaken every time syringe is moved in the tissues. Once blood is aspirated, syringe should be withdrawn and fresh injection should be undertaken after withdrawing the aspired blood. Intravascular injection of even a small quantity of local analgesic solution may lead to toxic reaction.

Local analgesic solutions—Stock and concentrated solutions of local analgesic drugs should be properly labelled or should be coloured so that they can be easily indentified and not confused with dilute solutions of the same drug. If a patient is known to have allergy to some specific local analgesic solution, a local analgesic drug of another chemical group should be used (Moore, 1967).

Observations—Pulse should always be measured following use of local analgesia. In case of doubt, blood pressure should be recorded. If possible, an assistant should observe pulse, respiration and blood pressure throughout the procedure. Additional trained personnel should be available for call in case toxic reaction develops.

Resuscitation apparatus—As it is not always possible to predict as to which patient will develop toxic reaction following local analgesia, following resuscitation apparatus should be kept ready for use in resuscitation at all times :

1. Air-resuscitation bag with adult and child masks.
2. Laryngoscope with adult and child size blades.
3. Magill endotracheal tube introducing forceps.
4. Endotracheal rubber tube with connections.
5. Poly mask for giving oxygen therapy.
6. Oxygen cylinder with fine adjustment valve and cylinder-spanner key.
7. Double airway for mouth to mouth respiration.
8. Intravenous infusion apparatus.
9. Drugs like adrenaline and IV glucose with syringes and needles.
10. If possible venesection set with cannulae.

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CASE NOTES

1

Splenectomy in Treatment of Drug Resistant Kala-Azar

E. LYNGDOH*, S. C. JAIN**, P. BARUA***

Splenectomy was one of the measures occasionally employed in the treatment of kala-azar prior to or in the early days of development of chemotherapy for kala-azar. Morton (cited by Manson Bahr, 1954) and Morton and Cooke (1948) reviwed the literature relating to splenectomy in resistant kala-azar and recorded fully the case of an English soldier infected in Calcutta with kala-azar completely resistant to antimony treatment who recovered after splenectomy followed by chemotherapy. The value of splenectomy in the treatment of drug resistant kala-azar has been indicated by workers from China and Australia. Sen Gupta and Chatterji (1961) reviewed the above cases and reported five cases of drug resistant kala-azar treated with splenectomy followed by chemotherapy, four of which were cured. In the present communication four drug-resistant cases of kala-azar treated by splenectomy are presented.

CASE REPORTS

CASE 1:

A Hindu male, aged 20 years, was admitted into the hospital on 1-8-62 with the complaints of low grade

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fever for 4 years and frequent attacks of epistaxis for last two years. He had been treated with pentamidine previously.

On examination, the patient was emaciated and pale. Pityriasis versicolor was noted over the neck and front of the upper part of the chest. Pulse rate was 76/minute, regular and of good volume. Temperature—99°F, B.P.—110/70 mm. Hg, weight—38 kg. The liver was palpable 2" below the costal margin in the right midclavicular line. The spleen was palpable 6" below the left costal margin in the midclavicular line, very firm and not tender.

Investigation—Hb.—50 per cent, RBC—3·2 millions/c.mm., WBC—6000/c.mm. with polymorphs 42 per cent, lymphocytes—46 per cent, monocytes—8 per cent, eosinophils—4 per cent, ESR—120 mm. at the end of 1st hour. Platelet count—180,000/c.mm. Aldehyde test was strongly positive. Sternal puncture—no L-D bodies were detected. Splenic puncture showed L-D bodies. The patient was put on urea stibamine in the usual dose but he did not improve but deteriorated. His Hb. came down to 26 per cent and platelet count to 150,000/c.mm. Fragility test was positive while bleeding and coagulation times were normal. Reticulocyte count was 3 per cent. After the improvement of his health with blood transfusion, splenectomy was done on 4-10-62. The spleen measured 12"×4½"×3". Section from the spleen showed enormous proliferation of the reticulum cells in the red pulp with the compression of the malpighian follicles. The reticulo-endothelial cells showed the presence of L-D bodies.

The patient improved with ethylstibamine. His Hb. went up to 78 per cent, WBC—9000/c.mm. and the weight was 60 kg. at the time of discharge. The last he was seen was in 1970 and the patient was well and healthy.

CASE 2:

A Hindu male, aged 24 years, was admitted into the hospital on 6-6-61 with the complaints of irregular bowel, loss of appetite and occasional fever for nine months, swelling of legs and sore throat for 1 month. He gave the past history of suffering from kala-azar five years back and of being treated with stilbamidine.

On examination, he was of average build. Tonsils were congested and oedema was absent. Pulse rate—118 per minute, regular and of good volume. B.P.—110/70 mm. Hg. Temperature—100·6°F, weight 40 kg. The liver was palpable 2" below the costal margin in the right midclavicular line and spleen was palpable 3" below the costal margin in the left midclavicular line, firm but not tender.

Investigation—Hb.—50 per cent, RBC—3·5 million/c.mm., WBC—10,500/c.mm. with polymorphs—40 per cent, lymphocytes—48 per cent, monocytes—10 per cent, eosinophils—2 per cent, reticulocyte count—3 per cent, ESR—110 mm. at the end of 1st hour. Platelet count—220,000/c.mm. Aldehyde test was strongly potitive. Sternal pucture showed Leishman-Donovan bodies.

The patient was put on urea stibamine but there was no improvement. Splenectomy was done on 12-8-61. The spleen measured 10"×4"×2". Section showed heavy parasitisation and features of congestive splenomegaly, the other findings included the presence of numerous, leishmanial granulomata. The patient was then put on neostibosan. At the time of discharge his Hb. went up to 70 per cent, WBC—7000/c.mm. and his weight was 62 kg. He was seen last in 1968 and at that time he was well.

CASE 3:

A Hindu male, aged 38 years, was admitted into the hospital on 15-8-61 with the complaints of irregular fever for past 3 years and swelling of the abdomen and bleeding from the nose for past 3 months. On examination, the patient was emaciated with hepatic facies. There was dark pigmentation over the face and upper limbs. Teeth and gums were unhealthy and the gums bled on touch. Oedema was present in the legs. Pulse rate was 100/minute, volume good and regular, B.P.—100/70 mm. Hg, temperature—100°F and weight was 48 kg. The liver was 2½" below the costal margin in the right midclavicular line, firm and not tender. The spleen was 6½" below the costal margin in the left midclavicular line. Fluid thrill and shifting dulness were present.

Investigation—Hb. 48 per cent, WBC—3750/c.mm. with polymorphs 38 per cent, lymphocytes 48 per cent, monocytes—13 per cent and eosinophils—1 per cent, RBC—2·4 million/c.mm. MCV—99·5 c.μ., MCHC 28·6 per cent. Reticulocyte count—4 per cent, ESR—40 mm. at the end of 1st hour. Bleeding time—5 minutes coagulation time—8 minutes 50 seconds. Platelet count—180,000/c.mm. Sternal puncture - Leishman-Donovan bodies seen. Splenic pucture showed Leishman-Donovan bodies. Aldehyde test was positive.

The patient was treated with urea stibamine, diuretics and aspiration of the abdomen. The ascites improved but the fever and anaemia showed no sign of improvement and splenectomy was performed on 4-2-62. The spleen measured 6"×3"×2". Section showed proliferation of cells of the macrophage type and some of them contained L-D bodies.

The patient was then put on pentamidine but there was no response and so he was put on urea stibamine. The patient improved and at the time of discharge his Hb. went up to 68 per cent and the WBC count to 7000/c mm. His weight rose to 58 kg. and he was well when last seen in 1967.

CASE 4:

A Hindu female, aged 14 years, was admitted into the hospital on 13-9-61 with complaints of low grade fever, gradual weakness and bulging of the abdomen for one year. She had been treated for kala-azar two years back.

On examination, the build was average. Pulse rate was 110/minute, temperature—100°F, B.P.—90/70 mm. Hg, and weight—28 kg. The liver was palpable 2½" below the costal margin in the right midclavicular line, firm and not tender. The spleen was palpable 4½" below the subcostal margin in the left midclavicular line, firm but not tender.

Investigation—Hb.—50 per cent, WBC—6100/c.mm. with polymorphs—35 per cent, lymphocytes—55 per cent, eosinophils—5 per cent, RBC—3 million/c.mm., MCV—

86 cμ, MCH—24μμg., MCHC—29 per cent, ESR—70 mm. at the end of 1st hour, reticulocyte count—4 per cent, bleeding time—2 minutes and 27 seconds, coagulation time—3 minutes and 24 seconds. Platelet count was 250,000/c.mm., prothrombin time—25 seconds, aldehyde test—positive, stool—ascaris and hookworm ova present. Sternal and splenic puncture showed L-D bodies. The patient was treated with urea stibamine and stilbamidine with no improvement.

Splenectomy was performed on 16-11-61. The spleen measured 10"×4"×2". Section of the spleen showed proliferation of the reticulum cells with heavy parasitisation, both intracellular and extracellular. Accumulation of plasma cells was found in the parasitised histiocytes.

This was followed by neostibosan. The patient improved and her weight went up to 50 kg., Hb. to 80 per cent and WBC count was 8000/c.mm. at the time of discharge. She was last seen in 1966 and was doing well.

DISCUSSION

The detailed data of individual cases covered the events for several years in each instance. It will be noted that their ages varied from 14 years to 38 years and three were males and one female. The duration of kala-azar previous to splenectomy varied between 4½ years and 6½ years. All the patients had repeated courses of treatment with both pentavalent antimonials and aromatic diamidines previous to the operation. Though there was clinical improvement following specific treatment, relapse invariably occurred within a few months and ultimately specific treatment had no effect whatsoever even when such treatment was backed by anti-anaemic treatment including blood transfusion and treatment of co-existing infections.

It will be apparent from the clinical data that all the cases had proved resistant to anti-kala-azar drugs before splenectomy was undertaken. When splenectomy was followed by prolonged chemotherapy, cures were obtained in all the four cases. Drugs which had previously failed to produce permanent cure were successful after the operation. It would thus appear that the spleen was in some way responsible for the failure of chemotherapy in these cases.

It is a known fact that kala-azar is a disease of the reticulo-endothelial system and spleen is the main riteculo-endothelial organ and its removal, therefore, will lead to diminution of infected reticulo-endothelial tissues. But this will not explain the whole position.

It was also recognised by earlier workers that excessive activity of the spleen might result in increased destruction of blood cells, thereby preventing cure of kala-azar (Burchenal *et al.*, 1947; Das and Sen Gupta, 1950). All the cases of the present series had marked or massive splenomegaly, profound anaemia and leucopenia except in case 2 where the leucocytosis can be explained by associated acute tonsillitis. Splenectomy was followed by immediate increase of haemoglobin value and red and white cell count and the haematological improvement could be stabilised by chemotherapy and cure of kala-azar during the next few months. There was thus distinct evidence of hypersplenism in these cases and this most probably played an important role in resistant kala-azar. But this is not the only cause as it is evident from the fact that splenectomy alone is not able to cure resistant kala-azar except in occasional cases and that even when the operation is followed by inadequate chemotherapy, relapse of kala-azar often occurs.

The other possible factors in the host and that of the parasite which may be responsible for drug resistance in kala-azar have been discussed by Sen Gupta and Chatterji (*loc. cit.*). They are: (i) Relative resistance of the parasite to chemotherapeutic agents. The histological changes in the spleen in kala-azar patients, besides heavy parasitisation, showed large accumulation of plasma cells. Plasma cells are known to absorb stilbamidine, one of the most powerful drugs against kala-azar (Snapper *et al.*, 1947) and failed to affect the parasitised histiocytes in these cases and thus cause relative resistance of the parasite to chemotherapeutic agents. The histological changes of the spleen in our present series confirm this factor.

(ii) Inability of the host reticulo-endothelial system to convert pentavalent antimony to trivalent antimony compounds. The pentavalent antimony compounds are believed to act indirectly through the reticulo-endothelial system and the aromatic diamidines both directly and through the reticulo-endothelial system. On analogy with the arsenicals, Brahmachari (1928) postulated that the pentavalent antimonials are converted to relatively toxic trivalent antimony by the reticulo-endothelal system and trivalent antimony acts directly on the parasite. Study of urinary excretion of antimony by polarographic method of Goodwin and Page (1942) has shown that such conversion of pentavalent antimony to trivalent antimony is significantly less in antimony resistant cases than in cases responding to the antimonial (Chatterjee *et al.*, 1956). The causation of this functional defect is not known.

(iii) Hypersplenism of persistent type is further confirmed by our findings in the present series.

But whatever factors are responsible, the present series provides further evidence that splenectomy is of great value in the treament of drug resistant kala-azar, the cases otherwise almost invariably end fatally. Out of the total of 29 cases reported in the literature, 24 were cured after splenectomy followed by chemotherapy. Das and Sen Gupta (*loc. cit.*) reported six cases with two failures, Wang and Wu (1959) reported 14 cases with two failures, Sen Gupta and Chatterji (*loc. cit.*) reported five cases with one failure and the present series of four cases with no failure.

SUMMARY

Four cases of drug resistant kala-azar successfully treated by splenectomy and prolonged chemotherapy are reported.

The operation followed by chemotherapy appears to hold the only chance of recovery for such cases which would have otherwise, very probably, terminated fatally.

ACKNOWLEDGMENT

We would like to thank the Principal, Dr. M. N. Bhattacharyya, for his guidance and permission to publish the case notes and Dr. B. Barua, Professor of Patho-

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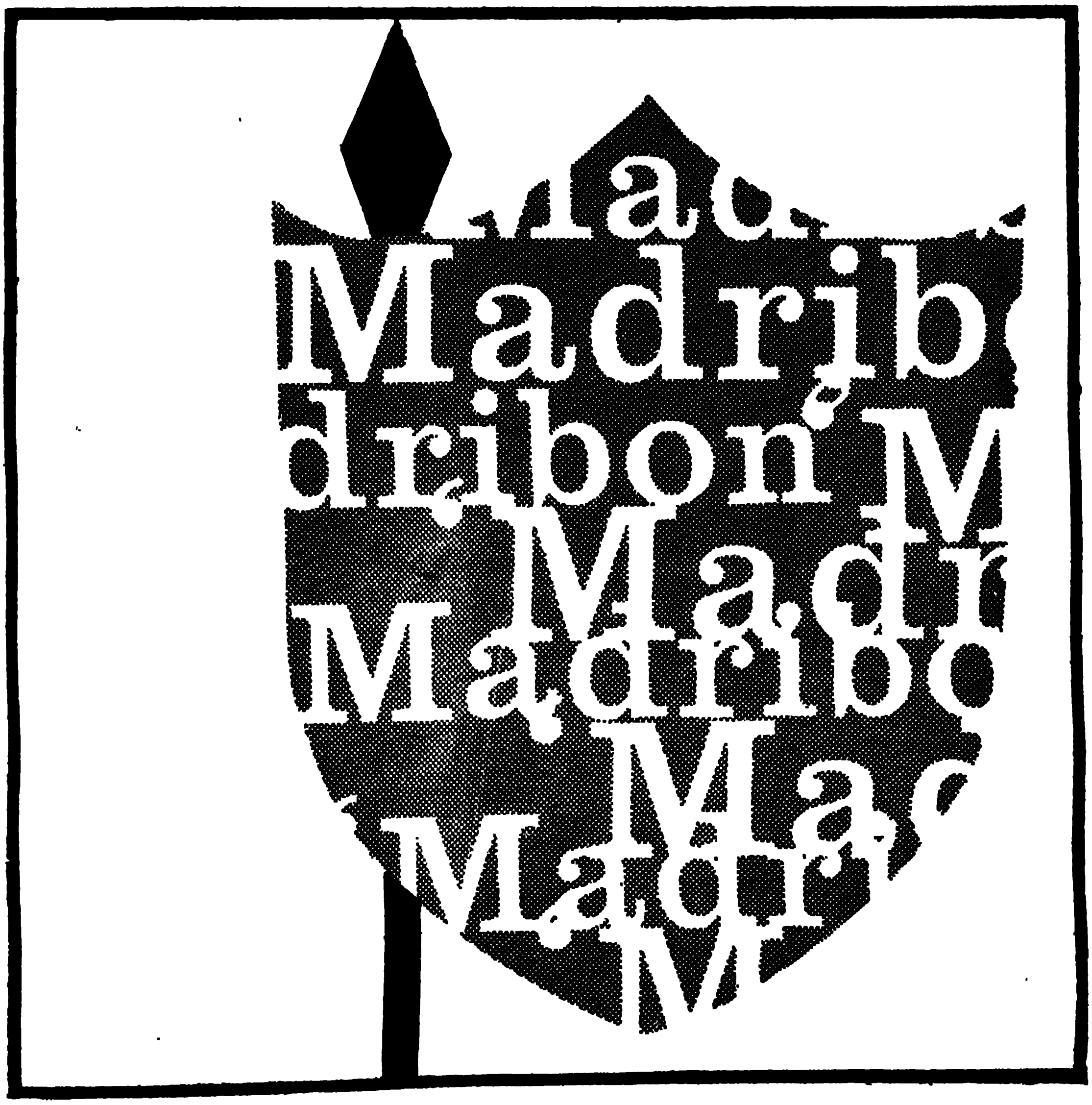

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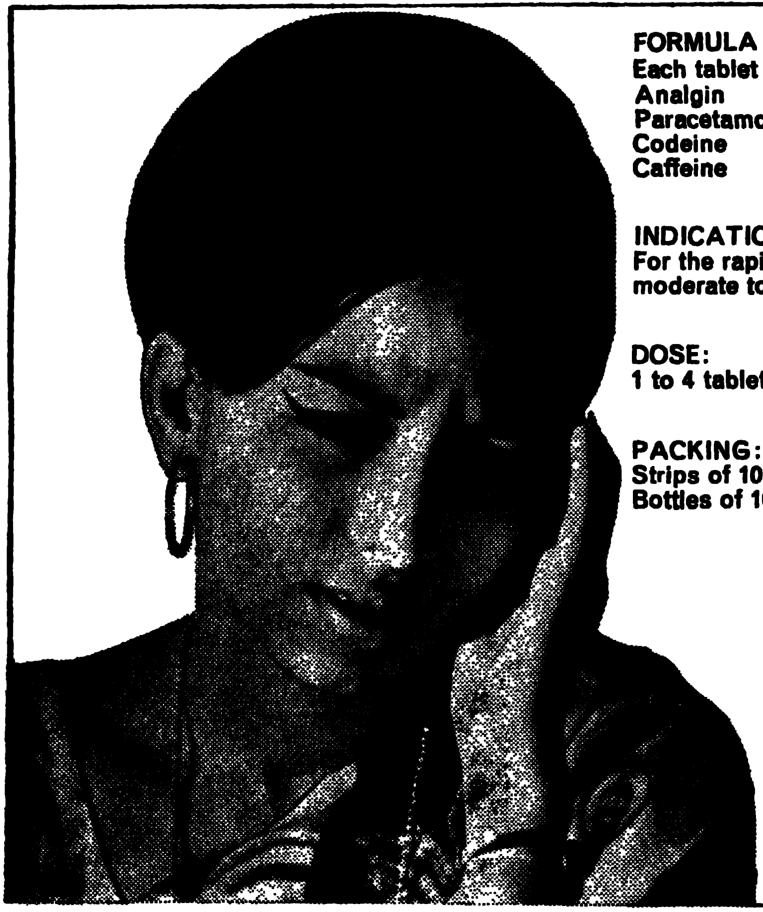

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logy, for his help. Neostibosan (Bayer) brand of ethylstibamine was used.

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2

Myasthenia Gravis in Childhood

K. KALYANARAMAN*, K. JAGANNATHAN**

Myasthenia gravis is a common disease especially in the adult age group with onset usually between the second and fourth decade. Though generally considered to be rare in children, Merritt (1967) mentions that it does occur before the age of ten. Ford (1966) also found a number of cases in childhood between the ages of eighteen months and ten years and stressed the value of prostigmine test in diagnosis. The following case report describes a 5-year-old girl with myasthenia gravis in whom the diagnosis after some difficulty was clinched by the tensilon test.

CASE REPORT

(N.S. 5596/69) A 5-year-old female child was admitted to the Department of Neurology and Neurosurgery of the Government General Hospital, Madras on 6-10-69 with the complaints of drowsy looks of the eyes and generalised weakness, both of 25 days duration. According to the mother, the child was perfectly healthy 25 days before the onset of her present illness when she had an attack of fever and cough suggestive of an upper respiratory tract infection lasting for 2-3 days. After the subsidence of this illness, the mother noticed that the child had a drowsy expression of the eyes but was active otherwise. A week prior to admission it was noticed that the child became generally weak and ill and refused to eat or drink complaining of difficulty in swallowing. No diurnal variation of complaints was noted, but often they were worse in the morning on waking up.

There were no significant facts in the past history. She was one of the three children of her parents and there was no history of myasthenia in the mother or any other members of the family.

Examination—Physical examination revealed a thin ill looking girl of stated age who preferred to lie down placidly rather than stand up or walk. However, she could on command get up from the bed or the floor unaided and walk a few steps but got tired easily. No thyroid enlargement was noted. Her vital signs and review of systems including peripheral blood vessels were normal. B. P. was 90/70 mm. Hg.

Neurological examination revealed normal mental functions. She spoke in a soft whisper and could not raise her voice enough to be clearly audible. The gait was normal she got tired easily on walking a few steps. There was moderate bilateral ptosis with normal extraocular movements and no diplopia or fatiguability of ocular muscles on sustained gaze in any direction. Pupillary reactions to light and accommodation were normal. There was moderate bilateral weakness of jaw muscles on mastication. Lack of facial expression suggested mild bilateral weakness of facial muscles.

Examination of motor system showed severe weakness of the anterior cervical muscles and generalised moderate weakness of all groups of muscles. Sensory examination was normal. The superficial and deep reflexes were normal with flexor plantar responses. The spine and cranium were normal. Cerebellar functions were normal.

Investigations—Total W.B.C.- 9,800 c.mm. with polymorphs 42 per cent, lympocytes 47 per cent and eosinophils 11 per cent. E.S.R.—22 mm. at ½ hour and 47 mm. at 1 hour.

Cerebrospinal fluid—colourless, normal pressure, 3 lymphocytes/c.mm., Proteins—less than 20 mg. per cent, Sugar—95 mg. per cent, globulin—negative and chlorides 680 mg. per cent, Edrophonium chloride (Tensilon) test 5 mg. of edrophonium chloride given intravenously produced dramatic improvement of ptosis (Figs. 1 and 2).

Electromyography Nerve conduction velocities were normal in upper and lower extremities. Repetitive nerve stimulation at 30/second with 50 ma. current produced a myasthenic reaction.

Treatment- The patient was initially started on neostigmine bromide 0·5 mg. i.m. 6 hourly and oral tablets of neostigmine 7·5 mg. t.d.s. She was also given a short course of corticosteroids—prednisolone 20 mg. daily. She gradually improved and could at the time of discharge speak, swallow, and walk and had no ptosis. She was taking neostigmine 15 mg. t.d.s. at the time of discharge on 27-11-69.

Course and follow-up—The child was readmitted after about two weeks with a history of fever and respiratory infection precipitating bulbar and generalised weakness. She was treated vigorously with suction of the throat, parenteral crystalline penicillin and parenteral neostigmine bromide. She imporved well and was discharged home

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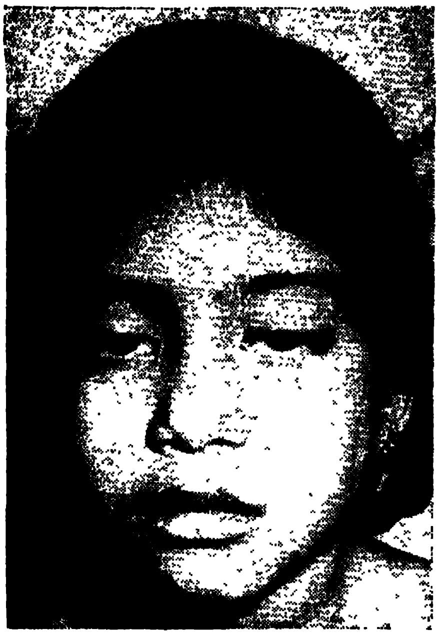

FIG. 1

after a week with advice to take neostigmine 15 mg. t.d.s.

The child was again readmitted after ten days with bilateral ptosis, dysphagia and generalised weakness. The mother also gave the history that the effect of neostigmine bromide was lasting only for three hours now. The patient was being continued on oral neostigmine bromide 15 mg. t.d.s. when three days after admission she went into a crisis with apnoea. Edrophonium chloride 2 mg. given i.v. produced improvement suggesting that this was a myastheinc crisis and not a cholinergic crisis. She became unconscious and cyanosed and was resuscitated by mechanical respiration, parenteral neostigmine bromide 1 mg. i.m. every six hours, dexamethasone 1 ml. i.m. 6 hourly and large doses of parenteral penicillin. The patient recovered well in 24 hours to breathe on her own. In view of her poor response to oral neostigmine bromide, she was started on oral pyridostigmine bromide 30 mg. every 4 hours with good improvement. She was also given irradiation to the mediastinum with 10 r of cobalt therapy daily for ten days. The patient was discharged after 8 weeks with good improvement of muscle strength with advice to take pyridostigmine bromide 30 mg. t.d.s.

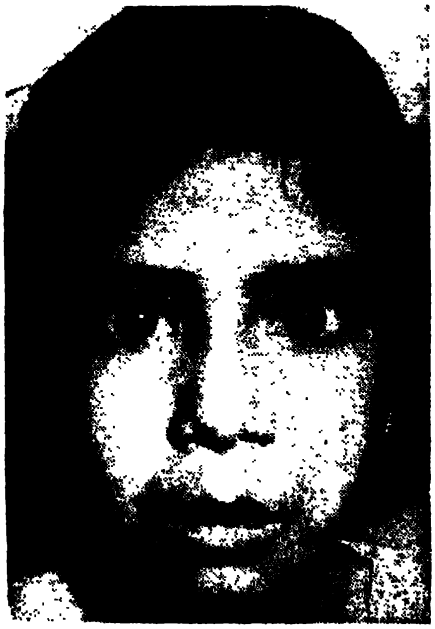

FIG. 2

She was readmitted again after 2 weeks with high fever. This time there was no worsening of her myasthenic state. She developed measles for which she was treated in the infectious disease ward and went home after a week.

The patient has been followed up for three months and is maintaining her improvement on pyridostigmine bromide 30 mg. t.d.s. She has mild bilateral ptosis but her general strength is good.

DISCUSSION

The interest in this case is because of the onset at an early age of the clinical picture of myasthenia gravis. As has already been mentioned such an early onset, though uncommon, is not rare. Myasthenia gravis is known to be precipitated by infection (Simpson, 1969). It is interesting that this child's admissions for myasthenia were always precipitated by severe respiratory infection. The diagnosis on admission was difficult to arrive at because of the explosive onset with generalised weakness and bulbar palsy. It is recognised however, that a small percentage of cases can occur with acute generalised myasthenia involving the bulbar muscles predominantly (Simpson, *loc. cit.*). The lack of diurnal variation in the degree of weakness and especially the history on first admission that symptoms were worse in the morning is unusual, but has been described (Simpson, *loc. cit.*).

In the absence of demonstrable fatiguability of extraocular muscles and the presence of severe weakness in the neck muscles and generalised weakness, polymyositis was considered in the differential diagnosis. This was ruled out because of a normal E.M.G. and other clinical features. The combination of generalised muscle weakness and bulbar palsy, preceded by upper respiratory infection suggested acute infective polyneuritis or post-diphtheritic polyneuritis. The former was ruled out by the absence of history of a patch in the throat and normal conduction velocities of peripheral nerves.

Few other reports in the literature have mentioned early onset cases (Macrae, 1954; Millichap and Dodge, 1960). The authors have stressed the value of neostigmine bromide test in diagnosis. It is now agreed by and large that edrophonium chloride test is a reliable and quick method of diagnosis. The diagnosis in our case was clinched by the edrophonium chloride test. Ebenezer (1960) reported a 9-year-old girl with myasthenia gravis from Vellore. He pointed out the rarity of the condition as out of 10208 children examined in a 11-year-period in Vellore, only 3 cases of myasthenia gravis were seen.

It is of interest that there was no family history of myasthenia gravis in our patient. Especially in the early onset group, familial cases occur as reported by Rothbart (1937) of two cases of myasthenia gravis occurring in brothers with onset in early infancy. The value of thymectomy in myasthenia gravis occurring in women below 30 years, with onset of disease recently and not responding to drug therapy has been stressed (Simpson, *loc. cit.*). In view of the reasonable satisfactory response to drug therapy, we did not plan thymectomy in this patient initially. We did suggest thymectomy on her readmission in crisis but this was refused by the parents. As a compromise, irradiation to mediastinum was given. The value of radiation to the thymus as a therapeutic measure has been controversial. Simpson (*loc. cit.*) doubts whether it is necessary or of any value at all. There is also said to be a risk of temporary exacerbation which contraindicates its use in the patient who is unfit for surgery. Perlo *et al.* (1966), however, felt that radiation increases the duration of postoperative survival but this aspect requires further appraisal. Keynes (1955) stressed the desirability of pre-operative radiotherapy before removal of a thymoma. Fortunately, in our patient, radiation to mediastinum did not produce any complication though one cannot certainly say that it contributed to the recovery of the patient.

According to Herrmann (1967), crisis in myasthenic patient may be precipitated by infections elsewhere in the body, especially in the respiratory tract. This was so in our patient. In these circumstances, the patient is unable to maintain a patent airway or adequate respiratory exchange. In some instances, crisis may result from inadequate anticholinesterase treatment. If so, an increase in the anticholinesterase medication is needed. In still others, weakness called "cholinergic crisis" may be provoked by an excess amount of anticholinesterase medication.

In our patient crisis occurred when she was on full doses of anticholinesterase medication in the hospital. So it became imperative to find out whether she had true "myasthenic crisis" or "cholinergic crisis". It is in this situation that edrophonium chloride test is very useful because of the short duration of its antimyasthenic effect. Within ½ to 1 minute of an i.v. dose of edrophonium chloride (usually 2 mg., initially, followed by 8 mg. if there is no abnormal sensitivity), there is improvement if the weakness is due to myasthenic crisis. If the weakness is due to cholinergic crisis, it is transiently increased and fasciculations may occur. We injected 5 mg. of edrophonium chloride i.v. during the crisis resulting in improvement of muscle strength. So we continued anticholinesterase medication parenterally with good improvement of patient's condition. The resistance of our patient to neostigmine bromide and with good response to pyridostigmine bromide later is probably due to the long lasting effect of the latter.

SUMMARY

A case of myasthenia gravis occurring in a child of 5 years is described. The explosive onset with generalised and bulbar improvement following an infection, and lack of diurnal variation of symptoms led to some initial difficulty in diagnosis. The diagnosis was clinched by the edrophonium chloride test. A brief review of literature reveals the condition to be not uncommon in childhood and the importance of neostigmine bromide or edrophonium chloride test in diagnosis. Some of the unusual features in our patient has been pointed out including lack of family history, lack of diurnal variation of symptoms, explosive onset and precipitation by infection. The value of edrophonium chloride test in diagnosing cholinergic crissis from a myasthenic crisis has been stressed. This is the younget reported case of myasthenia gravis from India and is the youngest in our series of 31 myasthenic patients seen in our department in the last twenty years.

ACKNOWLEDGMENT

We thank Professor B. Ramamurthi, Head of the the Department of Neurology and Neurosurgery for reviewing the manuscript and offering helpful criticism. Our thanks are due to the Dean, Madras Medical College and Government General Hospital, Madras for permitting us to publish this report.

Prostigmine (Roche) brand of neostigmine bromide, tensillon (Roche) brand of edrophonium chloride, mestinon (Roche) brand of pyridostigmine bromide and decadron (Merck Sharp and Dohme) brand of dexamethasone were used.

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3

Tuberculosis of the Mammary Gland

P. K. GOSWAMI*, L. M. KÁKOTI**

Considering the high incidence of tuberculosis in our country one naturally expects that the incidence of extrapulmonary tuberculosis should also be high. But from review of literature it appears that less number of cases of extrapulmonary tuberculosis has been reported compared to that reported from western countries.

Of the extrapulmonary tuberculosis, mammary gland is a rare site. Although several hundred cases of tuberculosis of the breast have been reported from western countries, only 38 similar cases have so far been reported from our country. This however does not indicate that the incidence of mammary gland tuberculosis in our country is low. Though the number of recorded cases of breast tuberculosis in our country is few, yet the percentage was higher than that of the West.

Mammary gland is an unusual site for tuberculosis; Sir Astley Cooper (quoted by Dharkar *et al.*, 1968) first described tuberculosis of the breast. Since then several hundred cases have been reported in the literature. From our country Choudhury (1957) reported 13 cases, Gupta and Roy (1960) 1 case, Dharkar *et al.* (*loc. cit.*) 4 cases, and Dubey and Agarwal (1968) 20 cases, thus totalling 38 cases of tuberculosis of the breast. It was thought necessary to add three more cases of tuberculosis of the breast that we came across during our routine histopathological examination. Of the three cases reported very little is known as to the clinical history and of the laboratory investigation as tissues only were sent for histopathological examination.

CASE REPORTS

CASE 1:

Mrs. C., a 35-year-old married multiparous woman had a swelling of the right breast. Size of the swelling was 2½″×2″. It was firm in consistency and was adherent to the skin. The right axillary group of lymph nodes were enlarged. Biopsy showed a typical picture of tuberculosis.

CASE 2:

Mrs. S., a 32-year-old multiparous woman had hard nodular swelling in the left breast for 1 year. Axillary lymph nodes on both sides were enlarged but not adherent. Biopsy from the nodule in the breast showed picture of tuberculosis.

CASE 3:

Mrs. R. T., a 40-year-old multiparous woman was admitted into the surgical unit 1 of our College with the complaint of swelling of the left breast for 7 months. The swelling was very small to start with and it gradually increased to the size of a small orange. She had also irregular rise of temperature usually in the evenings. She also complained of considerable loss of weight. The patient was poorly built. The left nipple was slightly at a higher level than the right. The swelling, 2½″×1½″ in size was situated in the lower left quadrant. It was fusiform in shape. The surface was irregular and margin ill defined. Axillary lymph nodes were palpable and firm but not adherent. The veins on the left side of the chest above the breast were engorged. Biopsy showed typical picture of tuberculosis.

DISCUSSION

During the period 1964-1969 a total of 88 patients with different breast lesions were histopathologically examined out of which 3 were found to be tuberculous. Thus the percentage of tuberculosis in our series was approximately 3·4 of the total breast lesions. The incidence of tuberculosis of breast was 3·5 per cent (Dharkar *et al.*, *loc. cit.*), 3 per cent (Choudhury, *loc. cit.*) and 4·5 per cent (Dubey and Agarwal, *loc. cit.*). Thus, of the cases reported from our country the incidence of tuberculosis of the breast is between 3 to 4·5 per cent. On the other hand the percentage of the tuberculosis of the breast reported from western countries falls between 1·04 to 1·78 per cent. Thus, it is evident that the incidence of tuberculosis of the breast is still high in our country compared to that of western countries, though the number of cases reported from our country is very few.

The lesion is more common in the female breast although tuberculosis of the male breast has been reported (Morgan, 1931). The breast is almost always involved secondary to tuberculosis of some other site (Morgan, *loc. cit.*). The primary site is usually the cervical or mediastinal lymph node and the infection of breast is retrograde in manner either *via* axillary or internal mammary group of lymph nodes. Primary tuberculous mastitis is more difficult to diagnose clinically and is frequently mistaken for carcinoma or chronic mastitis (Mekcown and Wilkinson, 1952).

SUMMARY

Three cases of tuberculosis of the breast that were found during routine histopathological examination have been reported. The incidence was found to be 3·4 per cent of the total breast lesions examined and is found to be higher than in the western countries.

ACKNOWLEDGMENT

We are very thankful to the Principal, Medical College, Gauhati, who has kindly allowed us to use the hospital records and publish the reports.

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JOURNAL OF THE
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CALCUTTA, DECEMBER 16, 1971

Blood Groups and Diseases

Is a person susceptible to some diseases because of being born with a particular blood group? This interesting topic has been engaging the attention of interested research workers for the last 3 or 4 decades and a considerable volume of literature is now available on the subject. Buchanan and Higley[1] were probably the first to investigate the question of relationship between diseases and blood groups. They could not, however, come to any conclusion. Thereafter interest in this area waned for a while till Levine *et al.*[2] showed that haemolytic disease of the newborn was due to Rh incompatibility. As is well known now, isoimmunisation of a Rh negative pregnant mother by a Rh positive offspring is the basic cause of this disorder. Maternal antibody produced during and/or after a prior pregnancy reaches foetal circulation and destroys foetal red cells. This new knowledge appeared to have revived the interest of workers in this field. Soon Aird *et al.*[3,4] and Beasley[5] produced substantial evidence in regard to association of gastric cancer and blood group A. Frequency of group A has also been reported to be higher in pernicious anaemia[6, 7]. Association of duodenal ulceration with blood group O has been conclusively shown by Clarke *et al.*,[8] who also noted that duodenal ulcer was more common in non-secretors than in secretors of ABH substances. ABO blood groups have been reported to be associated with diabetes mellitus, rheumatic carditis, cancer of colon, bronchopneumonia in children, hypertension and toxaemia of pregnancy[9]. There have been claims also of an association between a particular Rh type and peptic ulcer[10] and ulcerative colitis[11]. Wiener[12], however, doubts the accuracy of such data and believes that apart from erythroblastosis foetalis, no other disease has any definite association with a particular ABO blood group or Rh type. In the present issue of this Journal there are 4 reports relating to blood group and diseases. Hurkat *et al.*[13], did not find any positive relationship between ABO blood groups and various diseases they investigated. Mitra[14] could not find increased incidence of group O in his duodenal ulcer patients, furthermore, he hinted on an association between bleeding tendency and blood group O. In the third publication, Nayak[15] reports 56 per cent of patients with peptic ulcer belonged to blood group O. He also found a high incidence of cancer stomach, carcinoma of cervix and leukaemia in persons with blood group A. The fourth study[16] by Sinha *et al.* observed increase susceptibility and relative resistance to rheumatic disease in persons of group A and group O respectively. Comparison of combined non-O group with group O claimed to have clarified the position further rendering the P value significant.

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In spite of Wiener's strong criticism of such data, investigators are still engaged in this area and from time to time one comes across reports, which unfortunately, are conflicting and based on observations in relatively small number of subjects. Sometimes they are not even subjected to statistical analysis. Unless one analyses data from a very large series, preferably collected from various countries, the question, whether the susceptibility to a disease is linked with any blood group, cannot be solved decisively.

ASEEM K. BASU

The Attending Physician and the Consultant

We are quite frequently asked about the various relations between the attending physicians and the consultants. We feel we ought to make the position clear.

It must be remembered that a consultant need not be a specialist. A consultant may be a general practitioner ; on the other hand a specialist is not always a consultant. Again a general practitioner may have a definite inclination for a speciality. We should designate as specialist a doctor who sticks only to his speciality. Their number though is not large.

The I. M. A. is very definite on certain aspects of the question of an attending doctor *vis-a-vis* a consultant and it is on this aspect that most questions are asked.

We have been asked, for instance, whether a consultant having been consulted once or twice, could see the same patient without the attending doctor being present or without being advised by him. The answer is an emphatic 'No'. It is however a different matter when another attending doctor seeks the advice of the same consultant. We consider it very improper and unethical for a consultant to "take the patient" in the absence of or without a reference from the attending physician. The question of the patient being a relation or a friend of the consultant may complicate the issue, but we would advise, even in such cases, the presence of an attending doctor. This is because of the question of patient's safety ; the consultant may not be able to remember the details of the patient. Another question in this connection relates to that of splitting of fees. This is definitely unethical and should never be allowed. We have also been asked whether we would consider it unethical if the remuneration offered by the patient was not revealed to the specialist. In this case the consultant cannot naturally be blamed. Another question is about the discussion on the condition of the patient in front of him or in the presence of his relation and particularly the treatment he has already had as prescribed by the attending physician. The line of treatment should not be discussed in front of the patient, any relation should not be allowed to be present when discussions between the doctors take place ; exceptions however may be made at times depending on the circumstances. Adverse criticism of the attending doctor, even if merited, should not be done in front of the patient's relations or friends of the patient ; advice regarding mistakes committed should be given to the attending doctor, but that also only in private. When an attending doctor cannot be present due to any reason, after an appointment has been made, it would be better if the consultant would write his directions in a paper and seal it, to be given to the attending physician. Emergency of course creates a different position.

When discussion between the attending doctor and the consultant has taken place, the consulting physician may, if he so feels, discuss the position with the relatives and even with the patient, but always in front of the attending physician.

In case of a difference of opinion between the attending physician and the consultant, the consultant should explain the whole position before the patient's relative and it will be up to them or the patient to accept the one or the other or if the patient or his relatives in such circumstances want another opinion, the attending physician is expected to arrange the same. It is within the province of the attending physician to call the original consultant or another one.

When a patient or his relative wants a consultant, it is better that one such is called. It often happens that the patient's party ask for a particular consultant; if the attending physician is not willing to consult the same one, he should say so to the party and decide whether to consult the same doctor or another or give up the charge of the patient.

Uunder no circumstances the consultant should write to the patient or his relatives about the progress of the patient he had been consulted, but may enquire about the progress from the attending physician.

If there is any violation of these fundamental relations between an attending physician and a consultant, it is up to the attending physician to communicate through his branch to the State Branch and we are sure the State Branch authorities should know how to proceed further.

A. K. Bose

I.M.A. and A.I.M.L.A.

In September 1971 issue of the *Indian Medical Journal* some members of The All India Medical Licentiates Association have "quoted" *Times of India* dated 3-8-71 stating *inter alia* that "I.M.A. feels that medical licentiates should take condensed MBBS course to qualify for performing any abortion to terminate pregnancy as legalised by the Medical Termination of Pregnancy Bill of 1971". And on the basis of this so-called report they have gone so far as to even call upon medical licentiates to think of discontinuing membership of the I.M.A.

We feel it our duty to remind the Editor of *Indian Medical Journal* that honest journalism demanded a check-up of the alleged statement and verification of the same from I.M.A. office before the letter was published. Seeking legal protection under the column of "Letters to The Editor" does not offer any immunity against irresponsible and damaging utterance.

In fact, I.M.A. has never made any such statement anywhere, and nothing is further from our mind. On the other hand I.M.A. has extended full support to the Medical Termination of Pregancy Bill of 1971, now enacted by our Parliament, according to which a pregnancy may be terminated under certain conditions by *registered medical practitioners* in Government hospitals or a place, for the time being, approved for the purpose. It is true, while considering the draft Bill, I.M.A. did insist, for the safety of the patients, on two major conditions, namely that, (1) the decision to terminate a pregnancy should be arrived at jointly by two registered medical practitioners, and that (2) the operation should be performed in an approved place or institution. The term "registered medical practitioner" definitely precludes the false allegation of making any differentiation between medical qualifications.

It is not unknown to the Editor of *Indian Medical Journal* and the members of All India Medical Licentiates Association that for a long time I.M.A. has not only been fighting against all designs of creating and perpetuating compartmentalism and castism in the rank of medical profession, but also had been advocating a minimum uniformity in pay scales and service conditions for all doctors in employment all over the country. As an organisational guarantee to achieve such a goal cherished by all of us, I.M.A. has tried repeatedly and has still been trying to bring in closer ideological and structural cohesion between different medical organisations in our country including A.I.M.L.A.

We earnestly feel that our friends of the A.I.M.L.A. should realise our honesty of purpose in these respects.

We are sorry to note that at a time when the medical profession in our country is already at the cross-road of mounting offensive against scientific progress and bitter socio-economic struggles, by publishing such a letter, we would be only playing in the hands of those who are trying to undermine the unity in our profession. We believe all medical men including our medical licentiate friends who are for the unity and solidarity of the profession would resist any move for creating dissensions in our fraternity.

Samar Raichaudhury

CURRENT MEDICAL LITERATURE

Homocystinuria

Rahman, M. (*Brit. J. Ophthal.*, **55**: 338, 1971) from North Middlesex Hospital, London, writes:

Homocystinuria is an inborn error of methionine metabolism. Since it was first described by Carson and Neill (1962) in two patients in Northern Ireland, more than 100 cases have been described in the literature.

The site of biochemical abnormality was explained by Mudd, Finkelstein, Irreverre, and Laster (1964), who suggested that there was a deficiency or absence of the enzyme cystathionine-synthetase which is responsible for converting the essential sulphur-containing amino acid methionine into cystine and its end-products. This results in increased concentration of methionine and homocystine in the blood and cerebrospinal fluid, and an increased excretion of homocystine in the urine. Clinically, there is a characteristic picture of mental retardation, ectopia lentis, fair complexion, fair hair, high cheek colour, thrombo-embolic episodes, and skeletal changes. General pathological findings have been described in detail in a few cases and Henkind and Ashton (1965) first described the histological picture in four eyes. No satisfactory treatment is at present available for the condition, but the ocular treatment is, by choice, conservative.

Four cases of homocystinuria have been described, one of which also suffers from schizophrenia,. A relationship between these two conditions is re-emphasised. Another case showed some of the features of Marchesani's syndrome.

Haemodynamic Effects of Cardiac Arrhythmias

Barthel, A. G. and McIntosh, H. D. (*J. Kansas Med. Soc.*, **72**: 272, 1971) from the Department of Medicine, Duke University Medical Centre, Durham, North Carolina, state:

The clinical manifestations of cardiac arrhythmias may produce unusual or ill-defined symptom complexes. The occurrence of incipient or increasing congestive heart failure, angina pectoris, intermittent claudication or episodic dizziness, fatigue, transicnt neurological disturbrances or paroxysms of dyspnoea should alert the physician to consider the possibility of a cardiac arrhythmia.

It can be concluded that the haemodynamic effects of arrhythmias depend upon the underlying status of the myocardium, blood vessels, and end organs, the heart rate, preservation of the "atrial kick," and normal sequence of activation of the ventricles. The altered haemodynamic effects may be further aggravated by the effects of pharmacologic agents used to correct the arrhythmia.

Prevention of Early Postoperative Deep Vein Thrombosis by Passive Exercise of Leg During Surgery

Sabri, S., Roberts, V. C. and Cotton, L. T. (*Brit. Med. J.*, **3**: 82, 1971) from the Department of Biomedical Engineering, King's College Hospital Medical School, London S.E. 5, comment:

A clinical trial assessed the effect of passive exercise of the lower limb during surgery on the incidence of early postoperative deep vein thrombosis. Thrombosis was diagnosed by means of the ^{125}I-fibrinogen uptake test. Passive exercise of the lower limb during the operation was achieved by using a motorised foot mover designed for use on supine subjects, and by pedalling only one leg each patient acted as his own control.

In a sequential statistical analysis, 47 patients were required to reach the 5 per cent level of significance. Thrombosis was detected in 11 control (unpedalled) legs alone, and in only one pedalled leg alone. Two patients developed thrombosis bilaterally. The investigation shows that the incidence of early thrombosis in legs which were exercised during surgery was reduced by 77 per cent.

A Study on Hormone Dependency of Breast Cancer

Yogo, Hiroshi, Sasaki, Tokrisaburo, Yamaoka, Toru, Kunihimo, Matsuoka, Negoro, Hiroshi and Goto, Toshio (*Nagoya. J. Med. Sci.*, **34**: 79, 1971) from the 2nd Department of Surgery, Nagoya University School of Medicine, write:

Sex hormone dependency of breast cancer was studied *in vitro* by examining ^{3}H-thymidine uptake into DNA of breast cancer cells. DMBA induced breast cancer of rats, Shionogi carcinoma 115 andd Shionogi carcinoma 42 of mice were studied preliminarily. These 3 kinds of rodent breast cancer showed the same sensitivity to both sex hormones *in vitro* as has been shown biologically. Subsequently, this sensitivity test was applied to human breast cancer. The results were not so simple as in rodent breast cancer, but rather complicated. Human breast cancers were classified into oestrogen dependent group, oestrogen independent group and oestrogen suppressive group, according to their sensitivity to oestradiol-17 B. Human cases in postmenopause were distributed equally into the 3 groups, however, many cases in premenopause belonged to the oestradiol dependent group. The human cases were also classified into the 3 groups according to sensitivity to testosterone although not so definite. Hormonal treatments according to the sensitivity test were effective in all clinical cases.

Acquired Unilateral Loss of Dark Adaptation

Kelsey, J. H. and Arden, G. B. (*Brit. J. Ophthal.*, **58**: 38, 1971) from Moorfields Eye Hospital, City Road, London, observe:

Poor dark adaptation is a not uncommon symptom and may occur in a wide variety of diseases but its occurrence in one eye only is far less frequent. When it occurs unilaterally, an obvious ocular disease is generally present to account for it and visual functions other than that of dark adaptation are also depressed. Some subjects with poor dark adaptation may have no demonstrable ocular lession nor any other defect of visual function. Almost always they have one of the forms of congenital night blindness but sometimes the trouble is the first evidence of a progressive tapeto-retinal degeneration. Electrophysiological studies of the retinal function of these patients have proved to be useful, and Armington and Schwab (1954) have shown that by using electroretinography patients with a non-progressive night blindness can be differentiated from those with a progressive tapeto-retinal degeneration. Auerbach, Godel, and Rowe (1969) have similarly studied a large series of patients with night blindness. They have shown that

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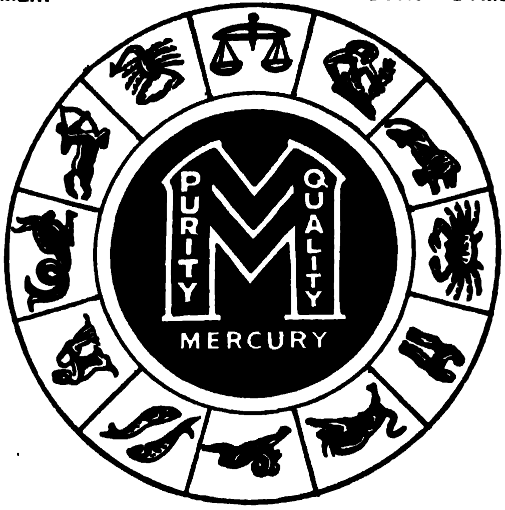

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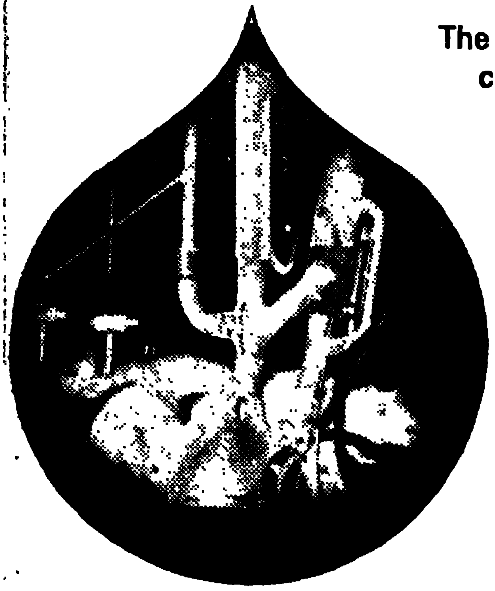

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patients with an apparently stationary night blindness fall into two main groups, but they also note that progression of the condition may occur. An acquired form of night blindness without obvious ocular defects and without disturbance of any other ocular function was described by Kelsey and Arden (1969) in which electrophysiological tests of retinal function suggested a lesion at the level of the bipolar cell layer. Two patients with similar acquired changes which were strictly uniocular are described below.

Two cases of unilateral loss of dark adaptation in adult life with no obvious ocular disease are described. The results of the electro-oculography (EOG) and elecro-retinography (ERG) suggest that the cause is a generalised lesion of the bipolar cell layer and that the condition may be reversible.

Lens Findings in Patients with Myasthenia Gravis on Long-term Treatment with Oral Anticholinesterases

LIFBERMAN, T. W., LEOPOLD, I. H., OSSERMAN, K. E. AND HYAMS, L. (*Mount Sinai J. Med.*, **38**: 324, 1971) from the Departments of Ophthalmology and Medicine and the Myasthenia Gravis Clinic and Research Laboratory, Mount Sinai School of Medicine of the City University of New York, and from the Division of Biostatistics, Department of Community Medicine, Rutgers Medical School, Rutgers, The State University, write:

In a study of 55 myasthenia gravis patients on long-term oral anticholinesterase therapy only 2 patients were found to have lens changes which in any way resembled these described after the longterm use of local anticholinesterase for glaucoma. Cortical punctate opacities in the lenses were common. They did not interfere with vision and were most highly correlated with the age of the patient. They may also be related to factors associated with myasthenia gravis and/or its treatment.

CURRENT TOPICS

1

Nobel Prize Winner in Medicine (1971)

RANAJIT K. DATTA*, BHAKTI DATTA**

In recognition of his outstanding "discoveries concerning the mechanisms of the action of hormones" one U.S. physiologist-pharmacologist has been awarded the 1971 Nobel Prize in Medicine or Physiology. The winner who will receive a $90,000 cash prize is Dr. Earl Sutherland, Jr., 55 years old, Professor of Physiology of Vanderbilt University School of Medicine at Nashville, Tennessee. The prize-winning work was carried out by the winner over the last 15 years. Dr. Sutherland is the 43rd American to win the Physiology or Medicine Prize since it was initiated in 1901. It is the first time in a decade that the Prize has not been shared, because "very seldom can a discovery be credited to a single person", a member of the Nobel Award Committee remarked. For the last 5 years, the U.S. scientists have shared in the Nobel Medicine Prize.

The Royal Caroline Institute which had chosen the Prize-winner cited Dr. Sutherland, Jr., for his work in unravelling the secrets of how hormones work and thereby opening up new paths in research into diabetes and cancer and throwing new light on other diseases. The Institute said that until recently the mechanism by which hormones exert their important functions had been a mystery. Because of Dr. Sutherland's elucidation, it added, "we can now understand the general mode of action of many of them". Through a series of brilliantly designed and carefully controlled experiments he discovered a new chemical intermediary and showed that it participates in a wide range of biochemical and physiological control and regulatory mechanism. By providing a comprehension of the role of cyclic adenosine 3′, 5′-monophosphate (AMP) in regulating hormonal action at the cellular level, Dr. Sutherland Jr. has laid down a conceptual foundation for understanding endocrine physiology in health and disease. As one of the monumental contributions in biomedical sciences of the last decade, he showed that cyclic AMP mediates actions of a considerable variety of hormones. Subsequent studies of numerous other scientists, in recent years, all over the world, having added to the structure now arising on the foundation of Dr. Sutherland's findings, cyclic AMP is now known to be an intracellular agent, a key regulatory substance, and a master molecule of metabolic control and regulation, which is even involved in the control of the expression of genetic information at the level of the chromosomes.

Though Dr. Sutherland's work is, primarily, basic research, it is most likely that its consequences will touch many fields of medicine of tomorrow. In 1956, he discovered cyclic AMP, a remarkably small molecular weight substance that appears to be present in minute quantities in every living cell. During the sixties, scientific and therapeutic interest in this basic constituent grew tremendously and today, the field of study with cyclic AMP is one of the fastest growing and most promising of all bio-medical research. Today, literally, thousands of researchers around the world are actively pursuing any number of leads towards understanding Dr. Sutherland's second messenger and the implications of cyclic AMP in the treatment and prevention of diseases are gradually becoming clearer. In view of the interaction

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between insulin and cyclic AMP new approaches may be possible in the treatment of diabetes. Since cyclic AMP levels rise during high phase of manic-depressive psychosis and fall with the depressive low phase, drugs which act on cyclic AMP or on the enzymes responsible for its synthesis and break-down may open a new therapy of treating manic-depressive psychosis. Further, the recent finding that cyclic AMP can transform malignant cells in tissue culture into normal cells has promising implications for cancer research. Role of cyclic AMP is now being stressed in atopic abnormalities in bronchial asthma. Thus, in the possibility of eventual therapeutic benefits in the treatment and prevention of diseases most pharmaceutical concerns of the world are having research teams working on the efficacy of cyclic AMP in the treatment or prevention of several diseases. It seems not unrealistic to hope that somewhere along the therapeutic research line, a new or improved method of therapy with cyclic AMP will be available.

As stated earlier, the work of Dr. Sutherland Jr. has established cyclic AMP as a seconary messenger and offers a unified mechanism of action of different hormones at the cellular level. Almost all the hormones so far tested have been found to be mediated through cyclic AMP. In addition to the mediation of hormonal actions, cyclic AMP regulates the release of many of the hormones. In some cases it appears that a hormone is both released by cyclic AMP and then acts *via* cyclic AMP. Examples of this are adrenocorticotrophic hormone, thyroid stimulating hormone and insulin. The ubiquity of cyclic AMP in control process has already been established and irrespective of the nature or functional speciality of the cells, cyclic AMP has been found to have a distinct role in the metabolism and function of the every type of cells so far tested. Changes in the level of cyclic AMP within cells either increase or decrease the rate at which cells carry out their appropriate functions. Many of the cellular functions once thought to be governed by hormones are now known to be controlled by cyclic AMP acting as an intermediary. It was once thought that adrenaline released in fear or excitement acted directly on the heart muscle cells, making them contract harder and the heart to beat faster. Dr. Sutherland's studies have demonstrated that adrenaline does not enter the heart cell. It simply activates and adrenaline-sensitive receptor on the cell's surface, and this, in turn, causes the cells to make more cyclic AMP. This, then, causes the cell to speed up its specialised function, which, in the case of heart cells, is to contract rhythmically. In the same way, about half of the hormones essential to metabolism are now known to act by causing a rise or fall in the level of cyclic AMP within target cells, changing the rate at which these cells perform their functions. Because the function of many cells is to secrete other hormones, cyclic AMP levels also govern, as stated earlier, the rate at which many hormones are produced. In addition, a rise of cyclic AMP content in other types of cells changes the rate at which their functions are carried out. Among these are the cells that uptake calcium to make bone, that break down fat in adipose tissue, that secrete digestive juices by stomach lining, and that synthesise protein.

One of the most remarkable properties of cyclic AMP is the finding that the addition of cyclic AMP to tumour cells in culture causes the cells to transform into normal cells. This transformation suggests that cyclic AMP may play a major role in cell differentiation, the process by which cells change their form and function as in the case of tumour cells or of embryonic cells that start out with a generalised shape and change into specialised cells. Further, changes in cyclic AMP levels are apparently implicated in the production of sperm in the testes, the storage of long-term memory in the brain and the development of allergic reactions in several tissues. Some recent studies by other investigators have strongly suggested that cyclic AMP acts at the level of genetic regulation.

Furthermore, several drugs already in use act apparently by altering the cyclic AMP levels in the body. Adenyl cyclase, which catalyses the formation of cyclic AMP from ATP, has been found in cell membranes in all metazoan tissues tested. It is a component of plasma membrane and may occur elsewhere. Most of the hormones that act by increasing the level of cyclic AMP in their target cells have been shown to do so by stimulating adenyl cyclase. The only enzyme presently known to inactivate cyclic AMP is a phosphodiesterase which converts it to 5′-AMP. This enzyme is inhibited by a number of drugs and agents such as diazoxide and benzothiadiazine diuretics, phenothiazine and reserpine derivatives. Thus, adenyl cyclase and phosphodiesterase play important roles in maintaining a given level of cyclic AMP in cells or in the body in general. Several agents including the catecholamines, prostaglandins, melatonin, and insulin are capable of lowering the level of cyclic AMP in some cells, though the mechanisms by which they do so are obscure. The dibutyryl derivative of cyclic AMP has been found to augment the metabolic response and is better tolerated in human subjects than the original compound. This raised the possibility of using dibutyryl cyclic AMP as a therapeutic agent in individual having low cellular level of cyclic AMP due to some defect in the receptor mechanism or defect in adenyl cyclase enzyme. If the defect is in the cyclic AMP phosphodiesterase, then, depending upon the nature of the defect, a suitable inhibitor or an activator of the enzyme can be used. Theophylline and caffeine are good inhibitors of cyclic phosphodiesterase, Dr. Sutherland Jr. found. This latter enzyme is stimulated by imidazole and possibly by nicotinic acid and insulin. Since cyclic AMP is known to stimulate the secretion of insulin, which in turn, activates the cyclic AMP phosphodiesterase, it may be possible that in certain cases of diabetic patients, the biochemical defect may reside in the mechanism of cyclic AMP production and possibly not in the secretory capacity of the islet cells. Administration of dibutyryl cyclic AMP or an inhibitor of cyclic AMP phosphodiesterase may be useful in those cases. Better understanding of the mechanism of regulation of cyclic AMP levels in different diseased states may help researchers design drugs specifically to adjust cyclic AMP levels and thus correct some biochemical defects.

Possible use of cyclic AMP as a diagnostic tool is now being explored in view of its involvement in some disorders. Thus, patients with pseudohypoparathyroidism have been found to have some defect related to adenyl cyclase, because these patients fail to respond to parathyroid hormones with an increase in urinary cycle AMP. Hyperparathyroid patients, on the other hand, excrete relatively large amounts of cyclic AMP and this excretion may be lowered after surgical removal of the adenoma. The 24-hour excretion of cyclic AMP in patients with renal disease has been reported to be markedly depressed. Higher urinary levels of cyclic AMP have been reported in manic patients and low in depressed patients. The urinary excretion of and plasma levels of cyclic AMP may be used to diagnose some disorders.

Cyclic AMP is not the only cyclic 3', 5'-nucleotide known to occur in living organisms and demonstrated by Dr. Sutherland Jr. Guanosine 3', 5'-monophosphate (cyclic GMP) also occurs in organisms and its formation and metabolism in several tissues have also made known by Dr. Sutherland Jr. Cyclic GMP has also been measured in plasma and urine, and its presence in the latter is almost entirely due to glomerular filtration. Extracellular cyclic GMP is increased in response to calcium, large doses of parathyroid hormone, and the alpha component of catecholamines. Dr. Sutherland Jr. believes that the biological role of cyclic GMP is different from that of cyclic AMP. Physiological concentrations of the two nucleotides do not appear to have similar actions, and in general, they are produced quite independently of one another.

Born at Burlingame, Kansas, on November 19, 1915, young Sutherland received his medical degree from St. Louis' Washington University in 1942. He started his career as an assistant pharmacologist at the same University (1942-45), later becoming its instructor of Pharmacology (1945-46) and of Biochemistry (1946-50), Assistant Professor (1950-52) and Associate Professor (1952-53). Later he moved to Cleveland's Western Reserve University School of Medicine as a Professor and Director of its Department of Pharmacology (1953-63). Since 1963 he is the Professor of Physiology of the School of Medicine of Vanderbilt University at Nashville. He served as an army doctor during the World War II.

Sutherland began his hormone work about 25 years ago in cooperation with Dr. Carl Ferdinand Cori, the 1947 Medicine-Nobelist for his studies on carbohydrate metabolism. Dr. Sutherland's early work was on the process by which adrenaline regulates the degradation of glycogen into glucose in the liver. For Dr. Sutherland the Nobel Prize tops a long list of honours that include membership in the U.S. National Academy of Sciences, an appointment in 1967 as a career investigator of the American Heart Association, a rare award that guarantees financial support for his research as long as he lives, and Albert Lasker Award for Basic Medical Research (1970). Dr. Sutherland is the 22nd winner of the Lasker Award subsequently to win a Nobel Prize.

2

The Perspective of Medical and Public Health Movement in India

SAMAR RAICHAUDHURY*

INTRODUCTION

Every year, from various conference platforms of the State and local branches of I.M.A., resolutions concerning vital interests of the medical profession and public health are adopted after serious deliberations and are duly forwarded to proper quarters including the State and Union Governments.

Usually, we quietly await favourable response from respective authorities or try to open a dialogue with them and go on cherishing our expectations till the next conference. In most cases, however, we are compelled to reiterate the same resolutions, perhaps in stronger language and with deeper resentment. This is going on year after year.

The fate of these resolutions, we all know, remains engulfed in the mystery of file-racks in respective health departments. And in the meantime, the medical and public health problems in our country either perpetuate or deepen further giving rise to all round frustration.

Thanks to the utter failure of the bureaucracy to appreciate the eagerness of the Association to play its due role in building up a proper health service suitable for the country, discontent and annoyance started creeping in the rank of the profession. Funnily enough, the powers that be, in almost all State, instead of trying to understand the view points of I.M.A. through open-hearted discussion, have always dubbed this discontent as anti-Government activities. However, the waves of protest demonstration and 'cease work' movement that swept over the medical world during last 2-3 years, clearly reveal the widening gap between the Government and the National Medical Association. Instead of peaceful co-operation in and enthusiastic support to the solemn task of re-building national health, a distressing atmosphere of 'struggle' hovers round the field of medical care to the ailing humanity.

Whosoever's responsibility may it be, the fight is on; fight for better health services, for higher emoluments and better working conditions for the medical and paramedical staff and for better teaching facilities etc. As the situation stands to-day, no fundamental change in the medical and public health set up in our country is visualised without a grim and protracted fight against antiquated ideas of health being still considered as a charity bestowed on by high-priest politicians, while medical men continue to remain entirely under the mercy of corrupt bureaucrats.

But how to fight? What are our long and short term objectives? What are our pressing demands? Who are our enemies and who are the friends? What should be the general form of movement? Do our slogans reflect also the expectations of the people at large? In other words, is our medical and public health movement directly or indirectly linked with the general democratic movement of our country? Such and many other questions are being raised constantly during the campaigns and actions launched by various States and local branches of I.M.A. as well as by our colleagues in different institutions and establishments.

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Let us clarify the situation a little further. Being disgusted with the callous indifference of the Government to pay any heed to I.M.A's constructive suggestions, or even to discuss on matters concerning health policy, an Action Committee was formed in 1969 to observe an All-India Protest Day in order to highlight some of our pressing demands. The day was observed quite successfully. Next year, i.e., in 1970, a similar Day was observed on the demand of higher capitation fee for the panel doctors as well as of proper treatment facilities for the insured persons. This year we have again observed a Demands Day for all doctors in employment. Encouraged by the spectacular mass mobilisation of doctors, a proposal has come to observe a similar Day for the general practitioners. And in the meantime, opinion of the medical public is surcharged with deep indignation against Government attempt to offer lawful protection to quackery, and it is quite natural that the trend of event will empower the same or another Action Committee to launch a stiff fight against this dangerously anti-people policy of the Government.

What then are we, the ordinary workers of I.M.A., going to do? Is the organisational structure of the average local branch of I.M.A. in a position to fight in different fronts? Is it possible to snatch out our demands from unwilling hands by observing such annual demonstration?

If we want our ranks to fight doggedly, a broad unanimity has to be reached on these questions. Let us not forget that even with an apparently weaker force it is possible to fight successfully provided both the rank and the leadership have a clear perspective of the struggle ahead.

THE PERSPECTIVE

1. *People's health*—If our national aspiration is to attain socialism, in the medical front our goal would be nationalisation of the entire health services with the proviso of every citizen enjoying the right to work and eat, and right to free medical aid and old age pension guaranteed in our constitution. But this goal, perhaps all will agree, is unrealisable at present or in the nearest future.

Our immediate objective should therefore be to build up a comprehensive NATIONAL HEALTH SERVICE (N. H. S.) which can (i) provide our people with effective health protection and (ii) embrace all medical men who are already in employment and also those who are engaged in private practice.

While planning out such a N.H.S. we need not copy the type of service provided in USSR or in Great Britain. Nor do we expect the same standard overnight. It is quite possible to organise a N.H.S. of our own model depending on our specific requirements and our own resources.

It is not our intention to present here an elaborate scheme on the proposed N.H.S. It may, however, be pointed out that by and large, the preventive health care in our country is being catered mostly by the State. On the curative side, it is already accepted in principle that the industrial population will be covered by contributory insurance scheme (E.S.I.), and in big commercial enterprises like the plantation, mines, railways, port and dock etc., the expenses for medical care for the employees will be met from the earned profit or by Government subvention. Though still very inadequate and imperfect, for the rural and urban poor the State has already opened a chain of hospitals and health centres with a scheme to expand the same, whereas most of the voluntary medical institutions receive regular grant-in-aid from the Government.

It is feasible, therefore, to co-ordinate and standardise these disjointed services run under different sectors and also to extend them particularly in rural areas under a unified command within the orbit of a National Health Service.

I.M.A. should be a willing partner to such a national enterprise not only because it fulfils our professional aspiration, but such a comprehensive N. H. S., particularly its rural counterpart will be the potential source of employment for the doctors.

2. *Professional demands*—(a) At present only about a third or fourth of the total number of qualified medical men in our country are directly associated with various health measures organised by the state and private establishments. The pattern of the N.H.S. should be laid out in such a way that the rest, i.e., the private practitioners who constitute the bulk of the profession, as well as all the future medicoes, may also contribute to and play their due role in making the N.H.S. successful. It has to be understood that for socio-economic and scientific reasons our people will have to depend more, in future, on organised service and institutional facilities. Rational utilisation of all available medical manpower is an essential prerequisite to meet this growing demand of the people.

(b) The various demands put forward by I.M.A. from time to time for improvement of working and living conditions of doctors, particularly of fixation of uniform minimum pay scale and N.P.A. etc., should be viewed in the light of the aforesaid objective of better care to the people.

(c) However, it has been our sad experience to find both the Government and the legislature to be peculiarly unconcerned with or lukewarm in seeing that the doctors, who form the pivot of all health care arrangements, are provided with such congenial working and living condition as to enable them to serve the people satisfactorily and in peace.

And this is not all. For years together, our repeated representation to the Government to take active steps to put an end to shameful exploitation of doctors have gone in vain. In the absence of any statutory rules governing the care of the sick and employment of doctors, and taking advantage of fallacious gaps in different enactments providing medical care to workmen (e.g., Plantation Labour Act, Indian Mines Act, Factory Act, E.S.I. Act etc.), the employers including Government departments have been allowed to cheat the people and exploit the doctors ruthlessly. Whereas medical men have been refused to be considered as 'workmen', and whereas strikes in medical institutions have been proposed to be banned, conditions of near slavery prevail in the name of humanitarian service.

As a result, a sense of denial and injustice pervades the medical world to-day, the entire responsibility for which rests on the Government.

(d) More and more it became clear that since the major responsibility of changing the public health policy of the Government still depends on the medical profession, confidence has to be created in them through militant united actions to break through the impediment.

(e) A bitter struggle has therefore been imposed on us.

(f) The question naturally comes—are we competent to change the health policy of the Government?

From the assessment of our past performances, our present forces and the mood of the people, there are reasons to believe that organisationally I.M.A. is definitely in a position to bring in a major shift in Government policy, provided we shake off the amateurish tendency to be content with annual demonstration; provided we place before our ranks and the people as well a comprehensive charter of demands and carry on a sustained fight at all levels.

This, in short, is the perspective of medical and public health movement in India to-day. It is a proud privilege of the medical profession to play the vanguard of this movement under the banner of I.M.A.

THE SLOGANS

So far we have raised various demands at the State and central levels which we thought, would do good to the people and which we considered essential for our professional activity. Taking them together, one can see that these demands touch almost every sphere of our professional, economic and cultural life.

Not that we underestimate them. Some of these demands may be so pressing that they require immediate solution. But time has come when we should sort them out on priority basis in such a way as to use some of them as levers to grind other less urgent ones. Naturally, they should be consistent with our broad objectives and hold good for the whole period or till they are achieved.

On the basis of the aforesaid analysis, we submit below a comprehensive charter of demands which may be finalised after collective discussion.

The Charter of Demands — (1) Introduction of a National Health Service of our own model by co-ordinating all the services catered at present under different sectors with special emphasis on (a) rural health, (b) protection of vulnerable groups, and (c) standardisation of all existing services. Special cells should be created for different types of services and for different sections of the population, e.g., rural, industrial, mother and child, school going children etc.

(2) Rational utilisation of the services of all medical personnel including the private practitioners.

(3) Proper functioning of E.S.I. (M.B.) scheme with upward revision of capitation fee for the panel doctors and extension of the scheme to other sections of working men.

(4) Setting up of an all-India wage board for all doctors employed under Government or non-Government institutions for purpose of fixing up a uniform minimum pay scale, non-practising allowance, service rules etc.

(5) Institution of a Parliamentary Committee to amend the existing laws providing health protection measures in different industrial and commercial enterprises with the object of ensuring a standard service to all employees and their dependants.

(6) Revision of medical education system conforming it to the need of the country.

(7) Strengthening and streamlining the public sector in drug industry in order to make the country self-sufficient in drugs and appliances and to bring down the cost of drugs within the reach of the common man.

(8) Setting up of statutory Health Councils at all levels with the object of democratising the administrative apparatus.

It is needless to mention that many more problems related to public health and professional interest will crop up from time to time which may have to be tackled in order of their urgency and seriousness. But it should be the duty of the Association to concentrate its energy on cardinal issues on the solution of which will depend our future progress.

FIGHT AGAINST WHOM?

From what has been stated earlier, it is clear that the edge of our offensive should primarily be directed against the bureaucrats who, in order to strengthen their personal position in the Government, have always cunningly shunned off all new ideas and proposals put forward by I.M.A. and have tried their best to discredit the profession in the eyes of the public by all mischievous means; who have corrupted the Government machinery and have brought in all round frustration and despair, and have thereby been mostly responsible for serious deterioration in the existing services.

Our fight is also against those short-sighted egoistical politicians who have relied more on the bureaucracy than on the expert opinion of the National Medical Association; who in their zeal to project personal and party image go so far as to offer legal protection to quackery; who feel shy to break through the outmoded and worn-out medical set up, a mere marginal change of which can no longer meet the growing needs of the people.

However, while concentrating our fire against the sterile health policy of the Government, it is necessary to differentiate between the corrupt officials and the ill informed members of the legislature. It is by continuous education of the latter through incessant campaign and united action of medical men at our bases that we can win them over on our side.

WHOM TO RELY ON?

(a) Surely there is no point in looking for outside help unless medical men themselves can stand on their own legs. Nobody wants to help the beggars in their fight for alms. Sooner or later, we have to take a firm decision either to live individualistic life under increasingly humiliating conditions or to organise ourselves as disciplined combatant force under the banner of I.M.A. in order to establish our legitimate rights and privileges. If the numerical strength and organisational structure of the Association do not correspond to this reality, it is high time for every medical man and woman to ponder over this serious issue and act accordingly.

(b) In our fight for collective welfare and progress the paramedical staff are our natural and reliable ally. Unfortunately, except in a few cases, the present trend of trade union activities amongst the hospital and other health workers does not offer favourable climate for joint action by all medical and paramedical personnel. Although there is a tendency at some quarters to shift this weakness on the "class character of doctors", dispassionate analysis may prove that the responsibility lies on both sides. In any case, at the moment, organisational cohesion between medical and paramedical staff is out of the agenda, though joint action on common programme on local basis cannot be completely ruled out.

(c) As in all other sectional movements, we also have vast and still untapped reserve force amongst the general public. In our E.S.I. campaign we have had a glimpse of enthusiastic co-operation of the insured workers. Wherever we had the occasion to meet the rural people at our socio-medical conferences or during our medical relief operations, we could feel their eager expectations in our proposed rural health scheme. We did receive encouraging as well as critical support from all sections of the public and the press whenever we launched active campaign for improvement in hospital services. Similarly, teachers and guardians are our potential ally in our school health programme, whereas mothers in general have always been and shall ever remain with us in our effort to strengthen maternity and child welfare (MCW) and Family Welfare Planning services.

There is nothing new in this formulation. Most of us have already enjoyed such public co-operation and confidence in our social service activities. If we pursue this well-tried line seriously and correctly link up our professional and economic demands along with, there is no reason why our people will not support them and jointly fight for them.

THE FORM OF STRUGGLE

(a) *The contradiction*—The form of struggle in medical and public health movement has always been a debatable one. The controversy has remained unresolved particularly due to the traditional ethical values and doctor-patient relation conflicting at times with socio-economic and political barriers.

Although ethical values are liable to be influenced by socio-economic changes in a given period, the virtue of unstinted devotion to science and humanity has been esteemed all through the ages as one of the finest qualities of mankind, and has placed the medical profession to the highest pedestal of the human society. This we cannot forget even in the face of blatant provocation and other odds.

On the other hand, experience shows that conventional forms of movement, e.g., submission of memoranda, deputation, mass representation, press publicity etc., no longer create any impact on the diehard bureaucracy. The evasive response from Government representatives to many of our long-felt grievances, their reluctance or inability to go deep into complex medico-social problems, and their hesitancy to counter bureaucratic designs, tempt us to believe that perhaps nothing short of "cease work" or strike struggles can make the Government move in the right direction.

(b) *What is to be done?*—What is the way out? The nature of our demands being primarily concerned with and intimately related to people's health, our main task should necessarily be to draw the widest possible public support in our favour. More precisely, our demands should be public demand. This will, of course, require sustained and patient campaign for months and years to take shape.

But under present day political climate public opinion alone may not be sufficient to force the government to act properly or in time. At times it may be necessary to take up higher forms of movement in the shape of direct action.

It has been found, as during observance of E.S.I. Demands Day that, whenever and wherever our patients took up our cause as their own, it was easier to break the ice. Instances are not rare when patients resorted to direct actions in support of our demand for better working and living conditions or against revengeful bureaucratic victimisation of doctors. Similarly, active protest in the form of a token "cease work" against repeated assaults on doctors could be staged by the profession quite successfully when after sustained campaign for months together it was felt that our patients and the general public would support such a drastic form even at the cost of their temporary suffering.

In short, a judicious combination of campaign and militant action at the opportune moment, with assured support from the people, should be our general form of movement.

(c) *Our weakness*—The main weakness in our past campaigns has been lack of sustained activity particularly at the periphery. With the exception of E.S.I. panel doctor's demand for higher capitation fee, serious attempt is yet to be made to popularise I.M.A.'s charter of demands amongst the people at large or to exert sufficient pressure on the Government through joint action of the people and the profession.

It may be unpalatable but nevertheless a fact that in our disgust against the unresponsive attitude of some trade union leaders, we have unconsciously allowed our demand for better treatment facilities for the insured persons to be side-tracked. As a result, not only our image before our patients is being faded out, we are compelled to depend more on lobbying with the bureaucrats than acquiring fighting strength from our bases. We are obliged to raise this point lest our concern for peoples' health is misconstrued as mere tactics.

Similarly, while our attempt to popularise I.M.A.'s rural health scheme by organising local sociomedical conferences on branch and regional levels was gaining momentum, suddenly we have abandoned such an effective form perhaps out of impatience. If lack of proper response from the people is the cause for such frustration, it may be borne in mind that failure to adopt higher forms of struggle at the proper moment is also a deviation from correct path.

(d) *Our strength*—Saddled with the unique responsibility of preservation and development of life, the medical profession is in a great advantageous position of collective bargaining. While conscious of this powerful weapon at our command, it is necessary to be cautious of not allowing our bargaining power to degenerate to mere economism.

It is for better service to the people that we want a National Health Service and better working and living conditions for the doctors. That means, the medical and public health movement is undoubtedly an integral part of the general democratic movement for peace, progress and socialism. If we utilise our arsenal for this common welfare of the society, not only shall we be able to cash some material benefit, the traditional image of the medical profession will also be upheld.

NOTES AND NEWS

Singapore Bill Restricting Medical Practice

Medical degrees of India, Pakistan and Ceylon will not be automatically recognised by Singapore under the Medical Registration (amendment) Bill now before her Parliament.

Under the new Bill, graduates from universities in these countries will not be able to practise in Singapore without special approval from the Ministry of Health. The Director of Medical Services, said that only new applicants would be affected when the Bill was passed. Also excluded from the new list of recognised universities are some Commonwealth as well as five American universities.

Aspirin May Lead to Intestinal Haemorrhage

Aspirin is a dangerous drug which can cause intestinal haemorrhage, Dr. Vernon M. Smith, a Maryland University professor and a gastroenterology expert, recently said at Baltimore. He said two tablets of aspirin not only eroded the mucous membrane, causing haemorrhage, but it slowed down blood circulation, thus prolonging the bleeding. He said he suspected that aspirin may be at the origin of heart attacks, strokes and excessive bleeding at the time of menstruation.

Reverting Cancer Cells to Health State

A professor of biophysics of the University of Colorado Medical Centre, Dr. Puck reported that malignant animal cells treated with two naturally-occurring body chemicals had caused the cancer cells to revert to a normally healthy condition within an hour.

Presenting his evidence to fellow scientists at the University of Chicago, Dr. Puck described this "astonishing" effect, where he used testosterone, a male sex hormone, and cyclic amp., a chemical that mediates the effects of hormones on a cellular level.

He showed fellow researchers slides of how cancer cells in Chinese hamsters were transformed into normal cells.

Dr. Puck, however, stressed that his work was still at a preliminary stage and more tests would have to be carried on animals before attempts on humans.

Application of Space Medicine on Earth

Immunising hospital wards, helping paralytic children to walk and using computers to get clear X-ray pictures are the outcome of the advances made in space medical technology, Prof. V. Ramalingaswami, Director of the All India Institute of Medical Sciences, New Delhi, recently said at Bangalore. He was delivering the Air Marshal S. Mukherjee memorial lecture on Nutrition in Space at the 14th annual scientific session of the Aero-Medical Society of India.

The scientist, who had returned only recently from a visit to the Massachusetts Institute of Technology, U.S., said revolutionary proposals were being discussed there regarding the future of space research.' A tail for astronauts to ensure better mobility on other planets and removal of the pelvis region in the body for inter-planetary travels were also mooted by some writers. Persons with short legs, dwarfs and midgets might find it more convenient to move about on other planets.

Several interesting facts about body metabolism were now available after the checking of astronauts' conditions, he added.

Bombay and Calcutta, Badly Polluted Cities

Bombay and Calcutta were probably the most badly polluted cities in India although the pollution had not reached the danger level. An investigation conducted by the National Institute of Oceanography (N.I.O.) in collaboration with the Central Public Health Engineering Research Institute, Nagpur, had shown that Chembur in Bombay was the most vulnerable to pollution. The Director of the N.I.O., told newsmen at Panaji (Goa) that there was urgent necessity of enacting legislation to force industrial establishments to treat the industrial wastes before discharging them as prescribed by the Indian Standards Institute and enforcing the legislation ruthlessly.

Relaxation of Import Restriction on Medical Equipment

With the relaxation of the Import Trade Control Policy by the Government of India for the year April 1971 - March 1972, Thackray medical instruments and equipment are again available to hospitals or medical institutions and registered medical practitioners for their own use, inform their suppliers in India.

22nd Annual Meet of Indian Association of Occupational Health at Tamizhagam

The 22nd Annual Conference of Indian Association of Occupational Health will be held at Tamizhagam in Ootacamund, on February 26—March 1, 1972. All persons interested in Occupational Health are invited to attend. Further information, may be had from, Dr. P. B. Sadasivan, (Tel. No. 72362) Secretary General, Indian Association of Occupational Health, No. 11, T.S.V. Koil St., Mylapore, Madras 4.

Indian Psychiatric Society Conference to be Held at Miraj, Maharashtra

The 24th Annual Conference of the Indian Psychiatric Society will be held on Janury 16-20, 1972 at Miraj. Dr. S. C. Sen, Principal Medical College is the Chairman of the Organising Committee, Dr. K. D. Udgaonkar, Hony. Secretary and Dr. B. M. Deb Sikdar, Organising Secretary. Those interested in the conference may write to the Organising Secretary, 24th All India Psychiatric Conference, Miraj, Kripamoyee Nursing Home, P.O. Wanleswadi, Dist. Sangli, Maharashtra State.

CORRESPONDENCE

The Editor is not responsible for the views expressed by correspondents

Therapeutic Use of Vitamin C

SIR,—I will be highly obliged if you kindly give your valued opinion regarding the therapeutic use of vitamin C which is used universally in cases of infection and G.I. tract diseases. The inventor of synthetic vitamin C preparation in the lay press decried the use of vitamin C in such cases

I am, etc.,

Calcutta Dock Labour Board Hospital
Nimak Mahal Road
Calcutta 23

SUKOMAL SEN, M.S.
Chief Medical Officer

Editor's Reply

The position of ascorbic acid is given below as reported by the World Health Organisation Technical Report Series No. 452. This will not only answer Dr. Sen's question but also give the readers other different aspects in this connection.

(a) *Enzymatic role*—It is connected with metabolism of connective tissue, particularly of collagen. Clinical observations have demonstrated that ascorbic acid may be necessary for the normal metabolism of tyrosine in both children and adult.

(b) *Wound healing*—Healing is retarded when intake is inadequate. Massive doses, however, do not hasten wound healing in either man or animal.

(c) *Infection and stress* — The evidence that large amount of ascorbic acid plays a role in preventing infection and detoxicating chemicals is equivocal. There is no reliable evidence that large doses of ascorbic acid protect against infections such as common cold or that excessive amount of the vitamins is utilised during severe infectious disease of all types.

(d) *Vascular reactivity and amino acid metabolism* — Vascular reactivity becomes abnormal in scorbutic conditions, perhaps as a result of changes in the β-adrenergic receptors or because of abnormal metabolism of sympathomimetic amines.

(e) *Haemostatic and blood-clotting activity* — Haemorrhagic phenomenon can appear even though all the customary tests of blood clotting activity remain normal. Biopsy of tissues by electron microscopy has failed to show any abnormalities of capillary.

(f) Recommended daily intake:

(i) Infants aged 0-6 months—it is accepted that breast feeding by a well nourished mother is the best way to satisfy requirements for ascorbic acid.

(ii) Minimum daily requirement for adult is approximately 6·5 mg.

(iii) Infants and children up to 12 years should have a daily intake of 20 mg. ascorbic acid.

(iv) During pregnancy and lactation an additional 20 mg. is recommended.

(v) It has been reported that heavy physical activity may increase the need, but there is no evidence for this.

(g) Effect of storage, cooking and processing:

Ascorbic acid is quite unstable in food particularly when a high temperature is attained as in cooking.

REFERENCE

W.H.O.—Techn. Rep. Ser. No. 452, 1970.

OBITUARIES

Dr. D. V. Kulkarni

Dr. D. V. Kulkarni, a member of the I.M.A., Nasik Branch, passed away on 18-10-71. He was till recently Superintendent of Maharashtra Tuberculosis Sanatorium at Nasik.

Dr. Kulkarni held at different time the offices of the Secretary and President of the Nasik Branch. He was also elected President of the I.M.A., Maharashtra State Branch for a term.

Dr. L. Ranjit Singh

Death took place at a very early age of Dr. L. Ranjit Singh at Imphal. Son of Shri Lourembam Iboton Singh (*alias* Chandrasekhor Singh) of Wangkhei Thangapatmapan, Imphal, Manipur. Dr. Singh was born in 1942.

DR. L. RANJIT SINGH

He matriculated from Johnstone High School in 1959 and passed the I.Sc. Examination from D. M. College in 1961 under the Gauhati University, obtaining a First Division in both the examinations. He got his M.B.B.S. degree in 1967 from the B. S. Medical College, Bankura, under the University of Calcutta. Shortly he joined the Medical Department, Manipur State, under Central Health Services.

Dr. Singh was loved by all for his sociable and cheerful disposition. He was also a good player in badminton, hockey and table tennis.

He had been an active member of the I.M.A. Manipur Branch since its inception.

SUPPLEMENT

JOURNAL OF THE INDIAN MEDICAL ASSOCIATION

VOL. 57, No. 12 CALCUTTA DECEMBER 16, 1971

XLVII All-India Medical Conference : : Madras : : 1971

VENUE—MADRAS MEDICAL COLLEGE, MADRAS 3

Reception Committee Office

453 Poonamallee High Road, Kilpauk Madras-10, Phones 64742, 62028

SCHEDULE OF MEETINGS AND PROVISIONAL PROGRAMME

24th and 25th December, 1971 ...	104th Meeting of the Working Committee.
26th and 27th December, 1971 ...	31st Annual Meeting of the Central Council.
28th to 30th December, 1971 ...	47th All-India Medical Conference.

December 28, 1971

8-30 A.M. TO 9-30 A.M. ...	Annual Meeting of the I. M. A. College of General Practitioners.
9-45 A.M. ...	Hoisting of National Flag and I.M.A. Flag.
10-00 A.M. TO 12-30 P.M. ...	Inaugural Session of the 47th All-India Medical Conference.
2-00 P.M. TO 2-30 P.M. ...	Inauguration of Scientific Session.
2-30 P.M. TO 4-30 P.M. ...	Scientific Session.
5-30 P.M. ...	Tea by Governor at Raj Bhavan.
8-00 P.M. ...	Dinner.

December 29, 1971

8-30 A.M. TO 1-00 P.M. ...	Scientific Session and visits to Hospitals.
2-00 P.M. TO 5-00 P.M. ...	Scientific Session.
5-30 P.M. ...	Tea by Mayor of Madras.
7-00 P.M. ...	Entertainment.
8-30 P.M. ...	Dinner.

December 30, 1971

8-30 A.M. TO 1-00 P.M. ...	Scientific Session and visits to Hospitals.
2-30 P.M. TO 5-00 P.M. ...	Closing Session of the Conference followed by Tea.

DELEGATE'S FEES

Arrangements are being made for the comfortable board and lodging of the delegates at the campus near the venue of the Conference. Delegates desiring lodging at the campus are requested to bring along their own bedding.

A sum of Rs. 25 per day has been fixed as charges per delegate for lodging and board including breakfast, lunch, tea and dinner. Free transport will also be provided from these places of lodging to the Conference venue and back. For those delegates who want only board arrangements, a sum of Rs. 15 per day will be charged.

For proforma of Delegates Registration Form see page 482.

HOTEL ACCOMMODATION

There are many hotels, vegetarian as well as non-vegetarian, maintained in Western and Indian style in Madras City.

Delegates, who would like to be accommodated in any such hotel, should immediately write to the Reception Committee office, mentioning their requirements.

The daily rates of the Hotels *for lodging only* are given below:

1. Hotel Swagath, Madras 14 (vegetarian)

Single Room	Rs. 15·00
Single Room (A.C.)	Rs. 27·00
Double Room	Rs. 21·50
Double Deluxe	Rs. 26·50
Double (A.C.)	Rs. 35·00

2. Woodlands Hotel, Madras 4 (vegetarian)

	2 Persons	Guest
Deluxe Cottage (A.C.) ...	Rs. 80·00 +	Rs. 10·00
Deluxe (A.C.) ...	Rs. 70·00 +	Rs. 10·00
Suites Single (A.C.) ...	Rs. 55·00 +	Rs. 15·00
Double Room ...	Rs. 30·00 +	Rs. 6·00
Single Room 1 person ...	Rs. 18·00 +	Rs. 6·00

Children under 10 years free (if staying with parents).

3. Queens Hotel, Madras 31

Single Room (A.C.) (with breakfast)	Rs. 40·00
Double Room	Rs. 65·00

4. Mayfair Hotel, Madras 6

Single Room (A.C.)	Rs. 45·00
Double Room	Rs. 70·00
Single Room (Non-A.C.) ...	Rs. 35·00
Double Room	Rs. 60·00

5. Oceanic Hotel, Madras 28

Double Room (Non-A.C.) ...	Rs. 30·00
Double Room (A.C.)	Rs. 40·00

6. Hotel Claridges, Madras 10

Single Room (A.C.) (with breakfast)	Rs. 35·00
Double Room (A.C.) (with breakfast)	Rs. 55·00
Double Room (Non-A.C.) (with breakfast)	Rs. 40·00
Single Room	Rs. 25·00
Cottage (A.C.)	Rs. 100·00
Suite	Rs. 80·00

7. Imperial Hotel, Madras 8

Double Room (A.C.)	Rs. 65·00
Single Room (A.C.)	Rs. 35·00
Double Room (Non-A.C.)	Rs. 40·00
Single Room (Non-A.C.)	Rs. 20·00
Suite (A.C.)	Rs. 80·00

8. Udipi Home, Madras 8 (vegetarian)

Double Room (Non-A.C.) Rs. 27·50,	Rs. 30·00
Single Room (A.C.)	Rs. 30·00
Single Room (Non-A.C.) Rs. 17·50	Rs. 20·00
Double Room (A.C.)	Rs. 40·00

9. Hotel Geetha, Madras 8 (vegetarian)

Single Room (Non-A.C.)	Rs. 15·00
Single Room (A.C.)	Rs. 25·00
Double Room (Non-A.C.)	Rs. 25·00 to Rs. 35·00
Double Room (A.C.)	Rs. 40·00 to Rs. 45·00
Cottage (A.C.)	Rs. 50·00

10. Hotel Arun, Madras 29 (vegetarian and non-vegetarian)

Double Room (A.C.)	Rs. 45·00
Suite (A.C.)	Rs. 75·00
Double Room (Non-A.C.)	Rs. 30·00
Single Room	Rs. 15·00

11. Hotel Airlines, Madras 2

Single Room (A.C.)	Rs. 19·00
Single Room (A.C.) Deluxe	Rs. 24·00
Double Room (A.C.)	Rs. 37·00
Children below 10	Rs. 10·00
Double Room (A.C.) (occupied by single person)	Rs. 25·00
Room (A.C.) for extra person	Rs. 15·00
Single Room (Non-A.C.)	Rs. 15·00
Double Room (Non-A.C.)	Rs. 25·00
Room Deluxe	Rs. 19·00
Children below 10	Rs. 10·00
Double Room (occupied by single person)	Rs. 19·00
Room (Non-A.C.) for extra person	Rs. 11·00

No board arrangements

12. Hotel Dasaprakash, Madras 7 (vegetarian)

Single Room	Rs. 18·00 to Rs. 20·00
Single Room (A.C.)	Rs. 27·50 to Rs. 30·00
Double Room	Rs. 30·00 to Rs. 35·00
Double Room (A.C.)	Rs. 40·00 to Rs. 45·00
Suite (A.C.)	Rs. 80·00

13. Hotel Everest, Madras 3 (vegetarian)

Single Room	Rs. 4·50, Rs. 6·50, Rs. 8·00
Double Room	Rs. 7·00, Rs. 10·00, Rs. 12·00
3 Persons' Room	Rs. 13·50, Rs. 16·00, Rs. 18·00
Family Room (A.C.)	Rs. 20·00
Double Room (A.C.)	Rs. 17·00

14. The Connemara Hotel, Madras 2 (vegetarian and non-vegetarian)

Single Room (A.C.)	Rs. 65·00
Double Room (A.C.)	Rs. 110·00
Suite (A.C.) Single	Rs. 110·00
Suite (A.C.) Double	Rs. 160·00
Deluxe Suite Single	Rs. 175·00
Deluxe Suite Double	Rs. 250·00

15. The Tourist Homes, Madras 8 (vegetarian)

Single Room	Rs. 12·00
Double Room	Rs. 17·00 to Rs. 22·00
Double Deluxe Room	Rs. 25·00
4-Bed Family Room	Rs. 32·00

16. Guptas Ajanta Hotel, Madras 14 (vegetarian)

Single Room	Rs. 9·50
Double Room	Rs. 15·00 to Rs. 20·00
Single Room (A.C.)	Rs. 29·00 to Rs. 25·00
Double Room (A.C.)	Rs. 30·00 to Rs. 35·00

Air, Train and Bus Timings

The timings of arrival and departure of Planes, Trains and Buses at Madras are given below:

Air Timings	Arr.	Dep.
Bombay (Caravelle) Tuesdays, Thursdays, Fridays, Saturdays, Sundays	2-35 P.M.	1-45 P.M.
Caravelle, Daily	1-00 P.M.	6-35 P.M.
Mondays and Wednesdays		8-05 P.M.
New Delhi (Boeing 737)	5-40 P.M.	6-20 P.M.
Calcutta (Caravelle)	1-05 P.M.	1-50 P.M.
Hyderabad (Caravelle)	5-55 P.M.	3-15 P.M.
Bangalore (Avro)	9-30 P.M.	7-15 P.M.
Trivandrum (*via* Cochin and Coimbatore) (Avro)	2-15 P.M.	6-10 A.M.
Cochin (*via* Bangalore) (Avro)	1-25 P.M.	8-00 A.M.
Cochin (*via* Bangalore and Coimbatore) (Avro)	9-45 P.M.	1-30 P.M.
Cochin (*via* Trivandrum and Madurai) (Avro) Thursdays, Fridays, Sundays	8-40 P.M.	6-40 A.M.
Cochin (*via* Trivandrum, Madurai and Tiruchi) (Avro) Mondays, Tuesdays, Wednesdays and Saturdays	9-15 P.M.	6-05 A.M.
Nagpur (night air-mail) (Avro)	5-15 A.M.	10-35 P.M.

City Train Timings

Madras Central	Dep.	Arr.
MADRAS CENTRAL		
Howrah Janata Express	8 30	19 10
Tatanagar Express	12 20	14 20
Howrah Mail	20 55	5 25
Circars Express	21 45	6 50
New Delhi Express	8 20	17 40
Hyderabad Express	13 20	11 05
Delhi Janata Express	15 10	16 10
New Delhi Air-conditioned/Grand Trunk Expresses	19 45	10 30
New Delhi Janata Sleeper Express (Weekly)	18 40	18 05
Dadar Express	10 00	17 15
Bombay Janata Express	13 40	14 00
Bombay Mail	21 50	5 15
Tirupati Express	6 00	21 40
Brindavan Express	7 30	19 20
Bangalore Express	11 20	15 30
Bangalore Mail	21 15	5 40
West Coast Express	12 45	15 00
Kerala Express	16 30	9 35
Mangalore Mail	20 00	7 00
Nilgiri Express	20 30	7 45
Cochin Mail	19 25	6 10
MADRAS EGMORE MAIN LINE		
Tiruchirapalli Express	8 55	17 10
Madurai Janata Express	13 40	7 45
Rameswaram Express	19 40	8 15
CHORD LINE		
Trivandrum Express	7 50	18 05
Tirunelveli Express	18 10	8 35
Trivandrum Mail	19 00	6 45
Pandyan Express	20 45	7 15
Tuticorin Express	21 15	6 10

Association Notes

President's Appeal to Members to Contribute Liberally for Air-Conditioning of I.M.A. House

Dr. A. K. N. Sinha, President, Indian Medical Association, has issued the following appeal to all members of the Association:

It is chiefly on account of your munificence and generous donations that your Association can boast of a befitting national Headquarters building of its own in the capital of the country. Standing on half an acre plot of land, the I.M.A. House, one of the finest structures in the newly developed area known as Indraprastha Estate, is a five storeyed building having one of the biggest auditoriums in the city (with a capacity to accommodate 750 persons), committee room, dining hall, residential rooms for members visiting Delhi from outstations and office complexes. A portion of the building measuring a little over 4,200 sq. fts. on the ground floor has been rented out.

This building project including fixtures, fittings and furniture, which has cost nearly Rs. 12 lakhs, has been financed mainly by your donations and partly by grants and donations from the Government of India and other sources.

Being one of the finest and largest in the Indraprastha Estate, the I.M.A. House Auditorium is, during winter months, frequently in demand by outside parties for conferences, meetings, cultural programmes, etc. This brings in revenue in the form of incidental charges which covers partly the expenditure on its manitenance.

Due to weather conditions during the summer months when it becomes almost unusable as it is not airconditioned, the demand for auditorium is much less. The parties who would otherwise like to take advantage of other amenities, would not book it because of inconvenience due to weather problems.

On the insistence of some of the patrons who have been off and on using the auditorium, the I.M.A. had under consideration the question of airconditioning the auditorium and other parts of the I.M.A. house for quite sometime. After calling for quotations from several firms, the scheme which has been prepared in consultation with M/s. Voltas Ltd., has been approved by the I.M.A. Buildings Standing Committee and by the Working Committee, I.M.A. and order for its execution has been placed with M/s. Voltas Ltd. The work is expected to be completed in about six to eight months time. The scheme provides for air-conditioning the auditorium fully and when the auditorium is not in use, for diverting the air-conditioning capacity to other parts of the building. The total expenditure is estimated at Rs. 5 lakhs approx.

The advantages that will accrue on the completion of the project are:

(i) the revenue from the auditorium, committee room and dining hall will increase, ensuring their better maintenance;

(ii) the rental value of the portion rented out will go up, giving more income to the Association;

(iii) the residential portion set apart for the stay of members visiting Delhi from out-stations will provide far greater comfort both during winter and summer; and

(iv) life of the building and other assets will increase as they will be saved from the dust and outside temperature.

The Association does not have in hand enough funds to finance the project wholly. It has placed orders with the suppliers with the confidence that as in the case of the initial building project, your generosity will come to the aid.

The Association will be in a position to find a sum of Rs. 2 lakhs from its own resources and for the rest of Rs. 3 lakhs, I appeal to you for donations to the I.M.A. Building Fund. With the past experience of your generosity, the Association is confident that your contribution will help in raising the required sum.

I hope each member will contribute liberally and help to complete this project. All contributions will be gratefully acknowledged and will have the usual income tax exemption.

I.M.A. Action Committee Invites Opinion of Members on Proposal for Highlighting the Problems of Private Practitioners

Dr. J. Majumdar, Hony. Joint Secretary, I.M.A. and Convener, Action Committee, has issued the following for information of all concerned:

The Working Committee of I.M.A. after considering a proposal for highlighting the problems of the private practitioners on an all-India basis agreed on it in principle and asked the Action Committee to get a cross-section of opinions of the members of the Association on the subject, process these properly along with the undermentioned points, which are relevant to the problems of private practitioners, and submit the same for consideration and decision by the I.M.A. Working Committee and/or the Central Council:

(a) The medical care in the country still largely remains in the hands of the private practitioners despite whatever progress the State Health Services have made.

(b) The Government must appreciate the part played by the private practitioners in the present medical and health care set-up and that they cannot be ignored if their service is to merge in future successfully into national health service employing all qualified medical men of the country.

(c) In the different sectors of health care such as the curative side, anti-epidemic measure, health education, school health, etc., the private practitioners should be employed on part-time basis on suitable remuneration both in the urban and rural areas.

(d) The liaison between the State hospitals and the private practitioners should be established in a manner so that cases referred by the private practitioners to the specialist departments of hospitals should be favoured with suitable report for the benefit of the patients and investigational services like laboratory, radiology, etc., be available to low-income group patients in the hands of the private practitioners.

(e) Medical certificate issued by registered private practitioners should be honoured at all levels.

(f) No State recognition should be extended to unqualified persons practising scientific medicine. All efforts should be made to stop all manoeuvres on the contrary.

(g) Government should subsidise with grants any effort for group practice and meet the establishment cost including salaries of para-medical staff which will go a long way for proper utilisation of medical personnel and for improvement of their performance in the very interest of the beneficiaries i.e. the people of the country.

(h) Government should make provision for financial and other benefits in the form of old age pension, gratuity or such other retirement benefits.

It would, therefore, be of much advantage if the general practitioners and others kindly take note of this move and extend their cooperation to it.

State Medical Conference

XXIV Gujarat State Medical Conference

Mahuva : 1971

The 24th Gujarat State Medical Conference was held on April 30 and May 1-2, 1971 at Mahuva. The conference was hosted by the Mahuva Branch, a small but quite an active local branch of I.M.A. in the State. About 400 delegates and visitors from all over the Gujarat State attended the Conference. Dr. H. L. Sheth presided over the conference. The President of the I.M.A., Dr. A. K. N. Sinha and Dr. J. Majumdar, Hony Joint Secretary, I.M.A., graced the occasion by their presence.

The inaugural session commenced on 1-5-71. At the outset Dr. S. G. Shah, Chairman of Reception Committee, welcomed the Chief Guest, delegates, visitors and other invitees to the conference after giving a brief history of the Mahuva Branch. The Maharaja of Bhavanagar, Dr. Virbhadrasinhi thereupon declared the conference open. Addressing the assemblage he said that the medical profession was like a missionary organisation and its responsibilities were greater than those of any other profession. He said doctors, who were held in high esteem by the people, should treat their profession as a means of service to the nation.

Dr. M. M. Nanavati, Joint Organising Secretary, read out the messages received on the occasion wishing the conference all success. Dr. N. C. Mankad, outgoing President, next introduced the President-elect, Dr. H. L. Sheth with a suitable speech and installed him in the Presidential chair. Dr. Sheth thanked the members for electing him President of the State Branch for the year 1971-72 and then delivered his address in course of which he dwelt on some of the important and burning problems of the medical profession, national health programme, medical education, etc., in the immediate context of the State's requirements.

Following the Presidential Address Dr. I.G. Bhatt, Hony. State Secretary, declared that this year Rajkot Branch had been selected for the award of Dr. P. R. Trivedi Rotating Trophy for best performance during the year 1969-70. Dr. A. S. Silhar, Hony. Secretary of Rajkot Branch, received the trophy on behalf of the branch.

Dr. R. B. Mehta, Hony. Secretary of the State I.M.A.'s Scientific Committee, thereupon requested Dr. A. K. N. Sinha, President of I.M.A., to inaugurate the Scientific Session of the conference.

Dr. Sinha thanked the organisers for giving him the opportunity to meet a large number of members of the Gujarat State Branch of I.M.A. He explained to the house the present policy of I.M.A. for redressing the grievance of the medical profession at large, whether in service or in private practice.

Dr. H. B. Bhatt (Surat) read his paper on "Development of Surgery in Moffusil" for which he was awarded the Dr. P. R. Trivedi Oration Trophy. Dr. R. K. Menda, an eminent surgeon from Bombay and member of Working Committee of I.M.A., gave a talk with slides on the Common and Rectal Problems in General Practive.

Addressing the conference Dr. J. Majumdar, Hony. Joint Secretary and Convener of Action Committee of I.M.A., referred to the successful observance of the All-India Protest Day on 1-7-69 and the E.S.I. Demands Day on 1-7-70. Speaking of the grievance of doctors employed in industries and services such as tea-gardens, coal mines, Central Government and State Government services, etc., he informed the house that at the 102nd Working Committee meeting the I.M.A. had decided to observe the "Doctors in Employment Demands Day" on 1-9-71 throughout the country. He appealed to all members of Gujarat State Branch to extend whole-hearted support to this call of I.M.A.

Finally, Dr. I. M. Khamar, Organising Secretary, thanked the Maharaja of Bhavnagar for inaugurating the conference and Dr. A. K. N. Sinha, President of I.M.A., for inaugurating the Scientific Seocion. He also thanked President of the Mahuva Municipality, the various institutions and persons who directly or indirectly helped the reception committee and the volunteers for their untiring efforts to make the conference a great success.

PRESIDENTIAL ADDRESS

Reviewing the progress of medical education and public health in Gujarat Dr. H. L. Sheth said that due to paucity of qualified medical personnel, limitation of financial resources and lack of health education among people, the State was yet far from the ideal standard of health care of citizens. The State had a large number of registered persons who were without any education as medical practitioners. Under such circumstances, he felt, the first and foremost thing was to give the villages suitably qualified doctors who should replace the registered quacks. The programme for medical education in the State must take into account the urgent need for more medical colleges and more admissions of students, he affirmed. He did not think of course that a simple rise in the number of students admitted would solve the problem. The number of beds and the number of patients must be increased simultaneously along with the rise in admissions so that the quality of the medical education to be imparted did not go down. Dr. Sheth expressed the belief that general spread of education would automatically make people health conscious and curb quackery. To save people from the clutches of the quacks, it was also essential to reduce the cost of medicine, he said.

Dr. Sheth deplored the prevailing trend of paying less attention to the prevention of diseases and devoting all efforts to their cure. He reminded the general practitioners of the important role they were required to play in removing the ignorance of the people about preventable diseases. It was the duty of every practitioner to not only treat the disease in the family but also instruct every patient about the cause of the disease and the methods of preventing it, he said. Incidentally, Dr. Sheth commended the move of the Medical College of Baroda for introducing Preventive and Social Medicine as a subject to be taught continuously for 4½ years and treating it as a separate subject for passing the final M.B.B.S. Examination

Speaking of the great changes coming over the practice of medicine, he said that the days of giving a bottle of medicine to outdoor patients were passing away. Doctors, in his opinion, were on the threshold of an era where the role of a general practitioner was going to be that of a Junior Consultant and dispensing would be mostly left to the chemists.

The State was already experiencing the environmental health problems consequent on its rapid industrialisation, said Dr. Sheth. The city of Baroda, for instance, had suffered for 4 years because of the polution of the Vishamitri waters by industrial disposals. Accidents were on the rise along with the growth of industries. The nuisance of smoke, poisonous gases and water polution, etc. were affecting not only the health of industrial workers but also that of the surrounding population. In this context Dr. Sheth pointed to the need for more orthopaedic hospitals or hospitals by insurance companies to treat industrial injuries promptly. He drew the attention of the Government to the growing incidence of tuberculosis among lower income-group people and pleaded for more effective anti-tuberculosis campaign with stress on preventive measures.

Dr. Sheth stressed the need for a proper survey of diseases in different parts of the State to ensure the success of any scheme for the prevention of diseases. He said there should be undertaken a detailed survey as to why calculi were common near Dessa, filaria was common in the coastal areas, hookworm common in Kaira district and early cataract common among Adivasis near Dohad.

Making an appraisal of the functioning of E.S.I. Scheme in the State where many industrial cities were already covered by the scheme, he said the success of the scheme depended to a great extent on the improvement of doctor-patient relationship and more emphasis being put on health education, immunisation and preventive aspects than on the treatment aspect of the diseases. To enthuse the E.S.I. staff in their work it was also essential to provide them security of service by making their recruitment on permanent basis with the benefit of regular government scales.

Dr. Sheth pleaded for adequate professional remuneration for doctors to make the service more attractive. With the rise in the cost of living the need for revising their pay-scales and allowances had become urgent. This was particularly so for the doctors who were working in the villages where many essential amenities of life were not yet available and who had therefore to spend more for the upbringing of their children and maintaining of two establishments. Dr. Sheth also emphasised the need for providing legal aid to the medical practitioners. He pointed out that in Britain, U.S.A. and many advanced countries no medical man was given service now-a-days unless he was a member of the medical protection society or similar other schemes. In view of the rise in the litigation against members of medical profession in this country, he urged the I.M.A. members to take the advantage of medical protection insurance scheme and form legal aid society in their own interest.

Referring to the problems of drugs supply, namely fluctuations in their availability, irregularity of prices and tendency to hoarding, he expressed the view that the industry should see that the needs of the society were met by continuous and steady manufacture and supply of drugs. At the same time he wanted the Government to so frame the import policy as to ensure regular and adequate amount of import of raw materials and supply of the same to the industry.

Dr. Sheth strongly pleaded for an effective voice of medical men in the framing of the laws for governing medical relief, health and medical edcation and administration. He deplored the absence of a strong lobby in the State Assembly or Parliament which could look after the interests of the medical profession. It is time, he said, to put people from their ranks to the election of the Parliament, State Assemblies, and bodies of local self government. He believed for instance, that the move of the quacks for registration could be defeated if all the State Units of I.M.A. as well as the parent body contacted the M.P.s and explained to them about the I.M.A.'s stand.

Dr. Sheth appealed to the delegates to persuade all qualified doctors in the State to join the Association, since they could strongly represent their case only if they were united.

Resolutions

The following resloutions were passed at the 24th Gujarat State Medical Conference at Mahuva:

1. This conference deeply mourns the sad demise of the following members:

Drs. H. P. Shastri (Surat), I. P. Patel (Dhoraji), G. I. Patel (Kalol-N.G.), A. K. Desai (Navsari), V. D. D'Costa (Broach), A. G. Jotania (Mangrol), K. H. Haradhwala (Surat), Akshya Mehta (Ahmedabad), K. C. Kania (Surat), I. C. Mehta (Surat), V. B. Bhatt (Bhavnagar) and M. K. Oza (Bhavnagar).

2. This Conference whole-heartedly supports the following resolution passed at 102nd meeting of the Working Committee of I.M.A.:

> "This 102nd meeting of the Working Committee of the Indian Medical Association expresses its deep concern at the terrible loss of life due to mass killing and indiscriminate bombing even of hospitals in Bangla Desh and offers its sympathies to the suffering people through the Government of India and further places its services at the disposal of the International Red Cross and the Government of India for relief measures."

3. This conference notes with deep sense of dis faction the meagre increase of the capitation fee Rs. 2·50 per I.P. family unit and recommends to Government that minimum remuneration of Rs. 30/- recommended by the One-Man Commission appoin by the Gocernment of India, be given as Capitation which is just and proper.

4. This conference recommends to the Governm that in order to take proper health care of students, qualified medical man, preferably I.M.A. member, appointed on the Board of Management of Schools a Colleges for effective implementation and follow-up School Health Programme.

5. This conference resolves that the Governmen insistence on getting medical certificates, issued by qu fied medical practitioners countersigned by the Ci Surgeon, is not proper and further resolves that Guja State Medical Council and the Government of Guja be requested to take the necessary actions.

6. This conference urges the Government in t interest of the health of the people to stop quacke in all its forms at the earliest and further requests t Government of Gujarat to implement the Drugs Act.

Branch Notes

DELHI STATE BRANCH

The annual general meeting of Delhi Medical Associ tion was held on 16-12-70. The following were elect office-bearers of the Association for the year 1970-71

President -Dr. L. D. Malhotra; Vice-President—D P. S. Bhatnagar; Hony. Secretary — Dr. R. P. Kher Joint Secretary—Dr. Jagat Narain; Assistant Secretary- Dr. V. M. Gupta; Treasurer—Dr. H. K. Arora; Libr rian -Dr. S. K. Aggarwal.

TAMIL NADU STATE BRANCH

Pollachi Branch A clinical meeting was held 4-10-70 at N.G.M. College with Dr. Raman in the cha

Dr. Jayaraman, Coimbatore Medical College, Head the Department of Skin and V. D., spoke about Comm Skin Disorders and Its Diagnosis and Treatment.

Dr. Kathirvelu proposed the vote of thanks. D Sheriff hosted the meeting.

Ramanathapuram Branch —The 40th annual meet was held on 29-11-70 at the Co-operative Cante Virudhunagar. Dr. Raju Iyer presided over the meeti which commenced after tea arranged by the doctors Virudhunagar. The Hony. Secretary presented the annu report and the statement of accounts for the year 1969-7 The following were elected office-bearers for the ye 1970-71:

President—Dr. Raju Iyer; Vice-President—Dr. Muthusamy; Secretary and Treasurer—Dr. S. Kasirajan Managing Committee Members—Dr. K. C. Natarajan, D N. Selvarajan and Dr. S. Radhakrishnan; Representativ to the State Council—Dr. Jeyabalraj and Dr. Lysanda Representative to the Central Council—Dr. Raju Iyer.

After the President's opening remarks Dr. (Miss.) Sundaram and Dr. T. Subramaniyam spoke on Emerge cies in Lower Abdomen. The meeting closed with dinner hosted by the doctors of Virudhunagar.

A meeting was held on 20-12-70 at S. H. N. Edwa High School, Sattur. Dr. T. Muthusamy presided ov the meeting which commenced with tea arranged by t doctors of Sattur. Dr. George Mathews welcomed t gathering and introduced the guest-speaker Dr. T. Venkathesan.

Dr. Venkathesan gave a talk on Management of Co mon Skin Diseases with the aid of slides. He also answere the questions put by members.

XLVII ALL-INDIA MEDICAL CONFERENCE
MADRAS (TAMIL NADU)

DECEMBER 28-30, 1971

VENUE : MADRAS MEDICAL COLLEGE, MADRAS 3

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ame and Address (Block Letters Please):

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ttending the Conference : Alone.........
With family ....No. of persons.

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egetarian... (No.) .... Non-Vegetarian...(No.) ....

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equirements : Lodging.................
(a) Campus............
(b) Hotel...............

Lodging and board.........
(a) Campus............
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hotel accommodation required : Indian Style
Western Style

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rriving by Train/Car/Air..................
ate of arrival...........................Time of arrival...................................
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y Train.........Which Train ?............

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ght-seeing : (a) Madras City
our (b) One day trip to Conjeevaram, Mahabalipuram, Thirukalikundram and Vedanthangal.
hoice (c) Thiruthani and Tirupathi.
ease. (d) South India—Tanjore, Tiruchy, Rameswaram etc.,
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ate: **Signature:**
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The War and Our Duty

We, the members of the medical profession, are intimately concerned with the war that is waging now in our country. Indirect war was already precipitated by Pakistani military Junta in sending out 10,000,000 refugees to India from East Pakistan under most miserable circumstances. India has most humanly and magnificiently performed the gigantic task of looking after such a huge influx and in such an able way. It had evoked admiration of the world at large. We reproduce here a circular recently released by the Hony. General Secretary of our Association on the matter of Civil Defence and Medical Relief work. Now it is our duty to take up our respective role during this emergency (vide P. 498).

The I. M. A. has already extended its all-out support to our Government in whatever way it may be possible to do so. We have heard of different States as having already taken steps in various Civil Defence programmes in co-operation with the authorities or by themselves.

Amongst other activities (1) we can certainly take up manning of first-aid posts either exclusively by the local I. M. A. or in co-operation with the civil authorities ; (2) we can certainly make available to our Government appropriate services helpful to the army ; (3) we can in local basis arrange for and execute work of maintenance of water supply, including prevention of pollution of water ; (4) we can discuss with the authorities to maintain the ambulance services or increase its strength ; (5) we can take part in mass immunisation ; (6) we can prepare a short course on first-aid training to the civil population in batches on our branch basis ; (7) we can confer with the Government to keep regional chemists' shops open during the blackout period.

In short we go all out immediately to help the proper authorities in all aspects of our social life and if necessary by working extra hours.

The I.M.A. should immediately call meetings of the State Councils and chalk out and arrange such and other effective measures during the national emergency.

A. K. BOSE

Call to I.M.A. Members to Participate in Civil Defence and Medical Relief Work

In course of a circular issued from the I. M. A. Headquarters to the Hony. Secretaries of all State/Territorial and Local Branches of the I. M. A., Dr. P. C. Bhatla, Hony. General Secretary, states:

Once again our land is threatened with a possible war by our adventurous neighbours who, in their folly to meet deficiencies in their country, may dare to commit aggression once again. In fact aggression has already been committed by the mal-deeds, mal-administration and utterly inhuman treatment meted out to its population with the resultant influx of the poor, famished, ill-clad, grief-stricken, injured refugees—men, women and children—to seek refuge in our country. Our Government has faced this challenge very courageously and has continued to render all help and assistance to make the stay of these refugees peaceful and as comfortable as possible.

Medical profession has rendered yeoman's service in the cause of medical relief to these refugees and it is possible in the near future it will be called upon to do a little more to give their best to the nation in the event of threatened aggression. It is hoped that the members of the medical profession, both individuals and through their branches, will get organised to render relief as a duty towards the Civil Defence during such emergency.

It is expected that the local authorities will be contacted and all relief work co-ordinated with that being provided by the civil defence authorities.

I appeal to the branches to initiate discussions with the civil defence authorities at the earliest so that plans can be formulated to meet any eventuality should the occasion so demand. Medical profession owes a duty to the nation and God willing, the members of the profession will, as in the past, come forward to render all help and assistance to the members of the community.

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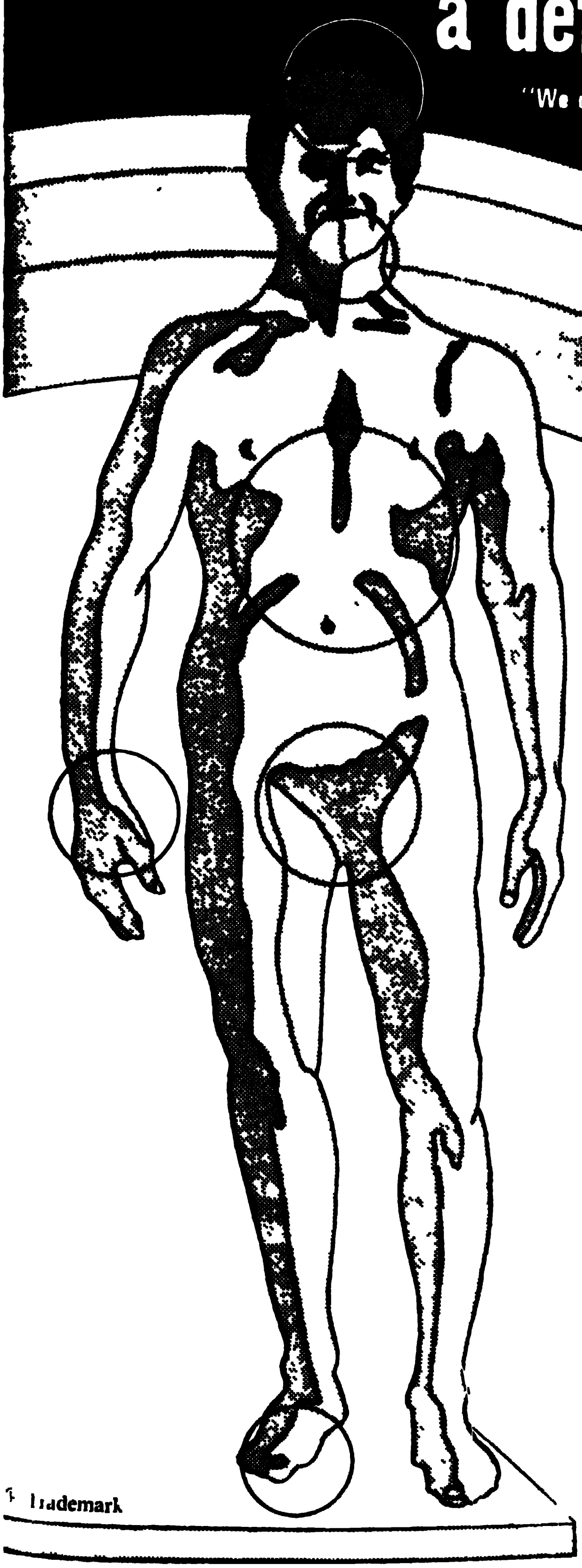
— Stern, J. & Fletcher, T.: J. Am. Pod. Assn., Apr 66, P 162-165



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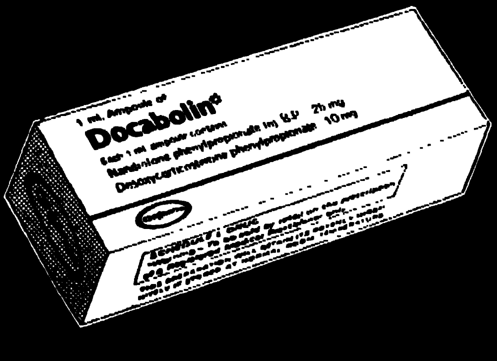

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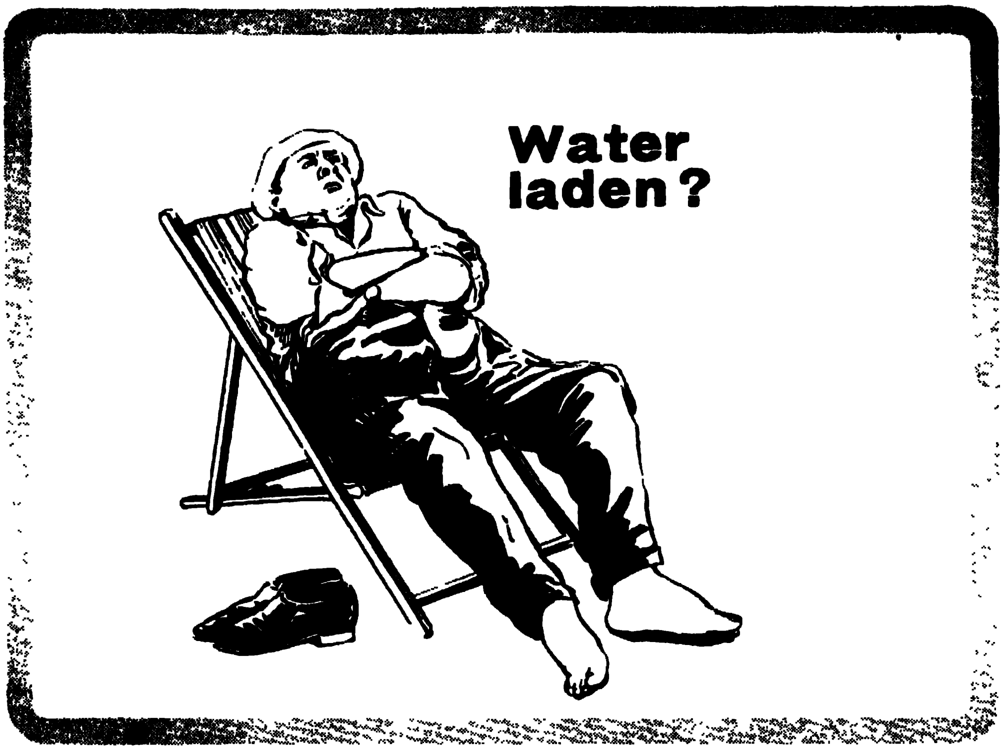

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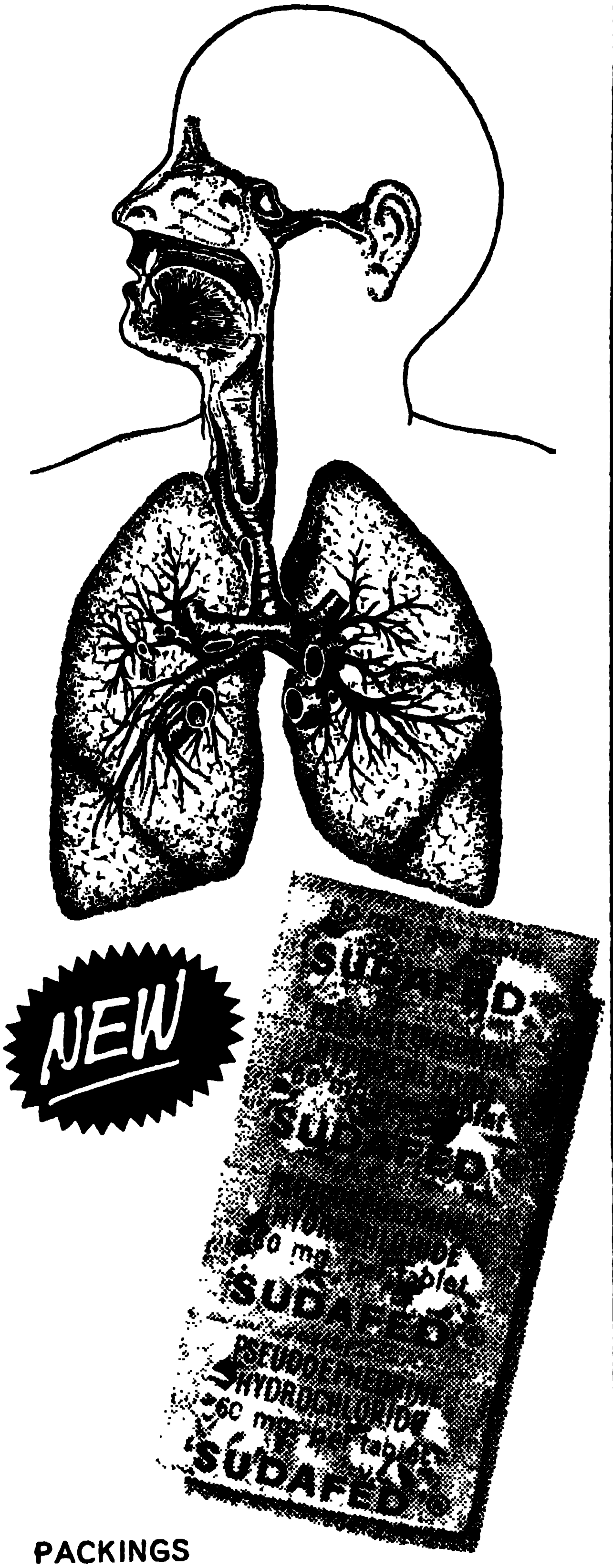

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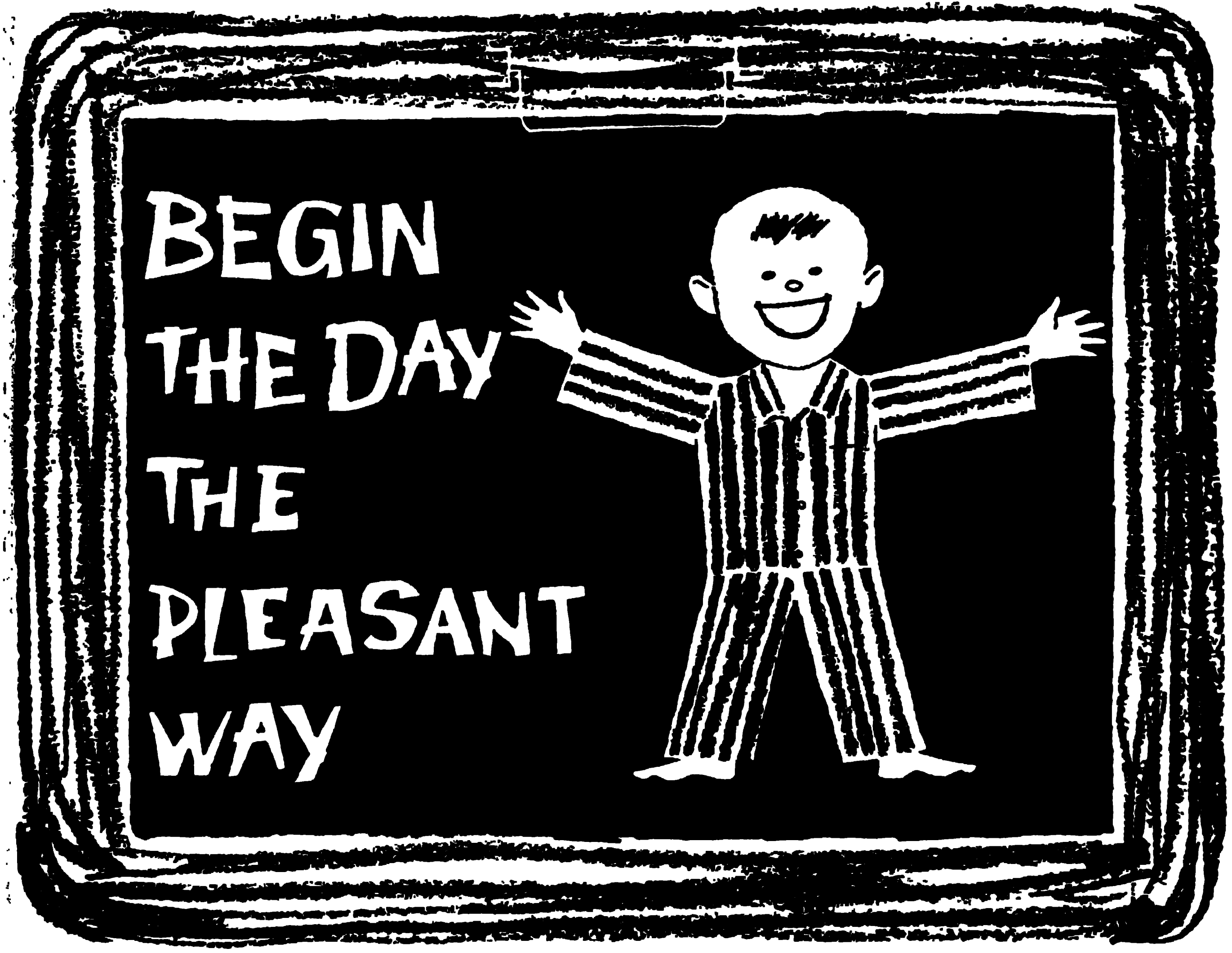

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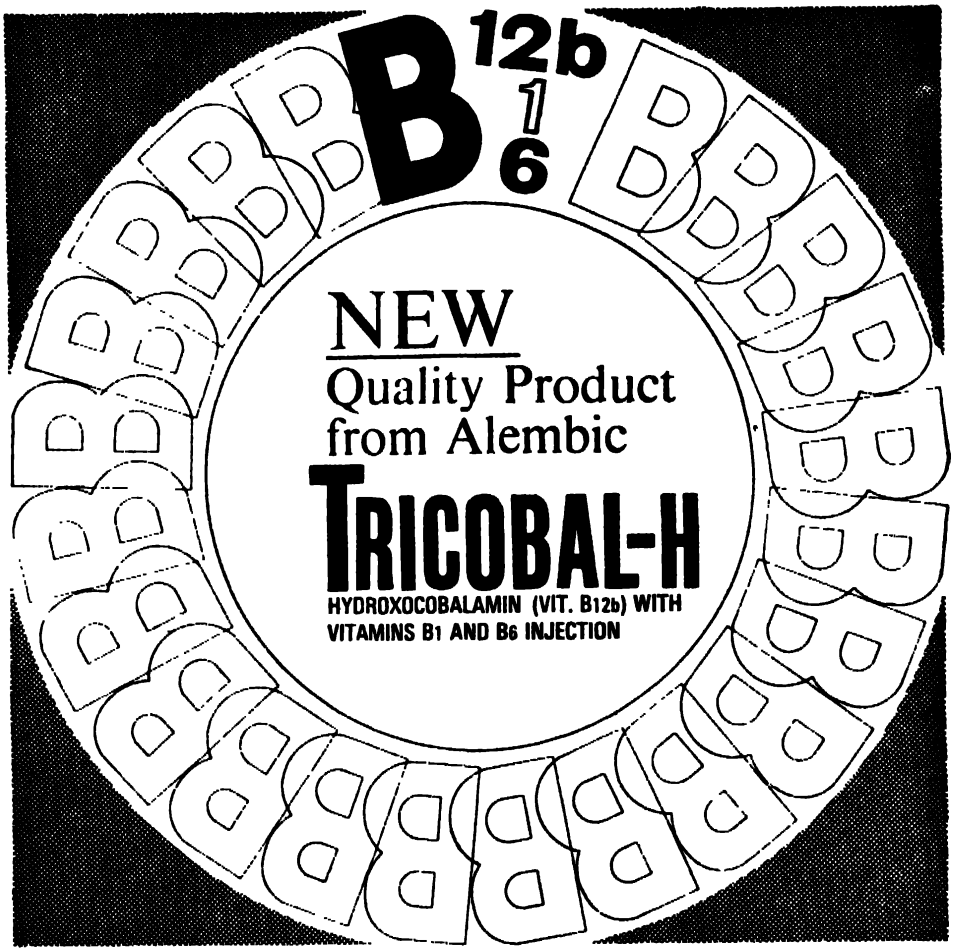

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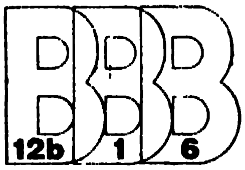

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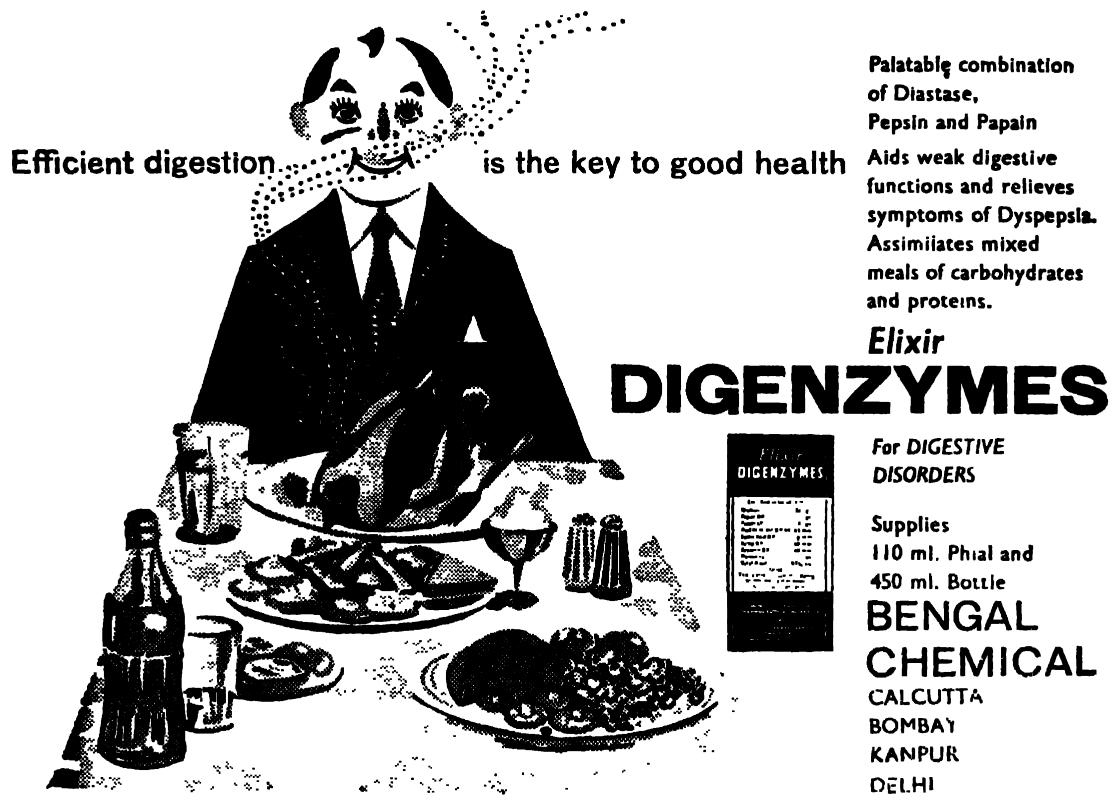

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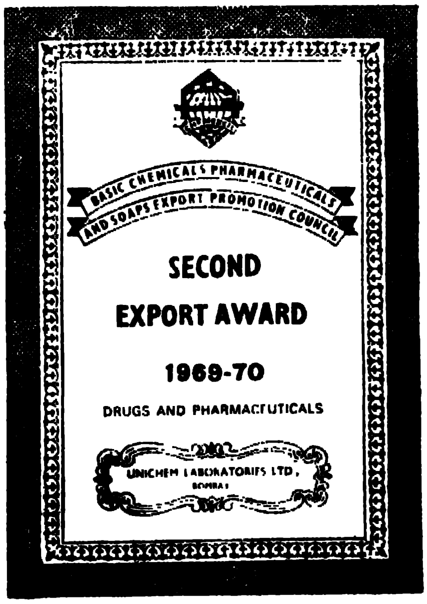

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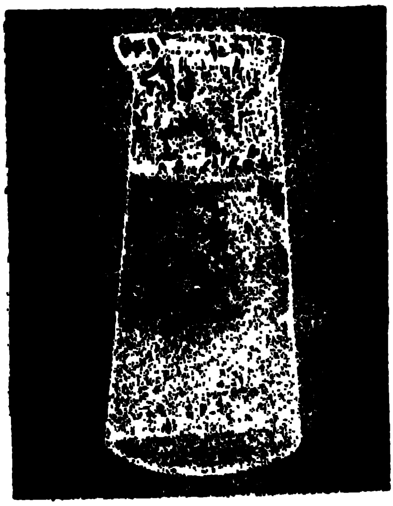
Cloudy urine—a forecast of kidney storms



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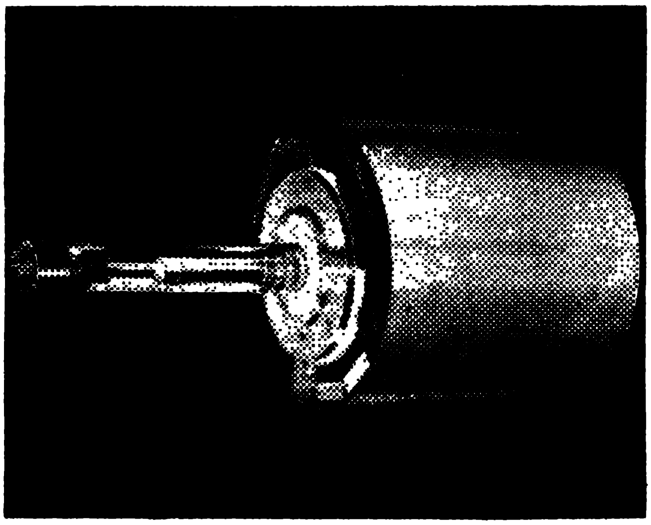

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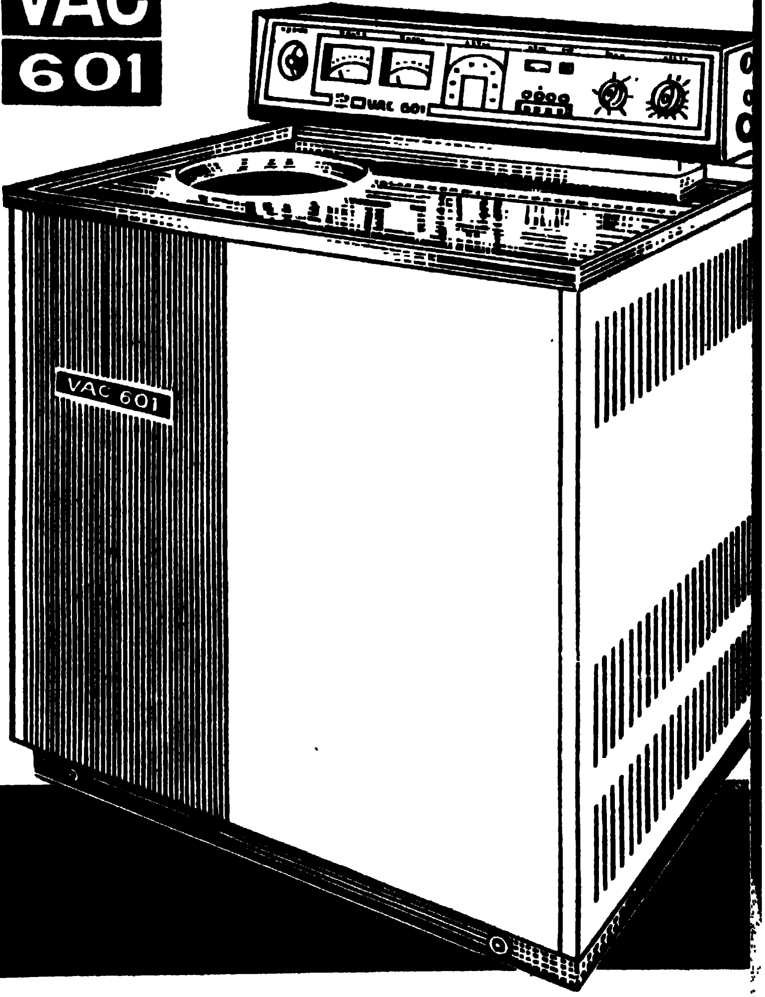

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ORIGINALS AND PAPERS

1

Oesophageal Atresia

(A Clinico-pathological Study of 21 Cases)

SUBIR K. CHATTERJEE*
AMAL CHAKRAVARTY**

[Received for publication September 18, 1973]

The subject of oesophageal atresia and tracheo-oesophageal fistula begins with the description of a case by Thomas Gibson (1697 ; cited by Ashcraft and Holder, 1969). His clinical and autopsy findings, as given below, was the start of the oesophageal atresia and tracheo-oesophageal fistula story. "About November, 1696, I was sent for to an infant that could not swallow. The child seemed very desirous of food, and took what was offered it in a spoon with greediness ; but when it went to swallow it, it was like to be choked, and what should have gone down returned by the mouth and nose, and it fell into a struggling convulsive sort of fit upon it. It was very fleshy and large, and was two days old when I came to it ; but the next day died. The parents being willing to have it opened, I took two physicians and a surgeon with me... We blew by a pipe down the gullet, but found no passage for the wind into the stomach. Then we made a slit in the stomach, and put a pipe into its upper orifice, and blowing, we found the wind had a vent, but not by the top of the gullet. Then we carefully slit open the back side of the gullet from the stomach upwards and when we were gone a little above halfway towards the pharynx, we found it hollow no further. Then we begun to slit it open from the pharynx downward, and it was hollow till within an inch of the other slit, and in the imperforated part it was narrow than in the hollowed. This isthmus (as it were) did not seem ever to have been hollow, for in the bottom of the upper and the top of the lower cavity there was not the least print of any such thing, but the parts were here as smooth as the bottom of an acorn-cup. Then searching what way the wind had passed when we blew from the stomach upwards, we found an oval hole (half an inch long) on the foreside of the gullet opening into the aspera anteria a little above its first division, just under the lower part of the isthmus above mentioned".

Since then, large series of cases with unsuccessful attempts were reported till 1943 when Haight and Twosley reported the first successful extrapleural ligation of the tracheo-oesophageal fistula and end to end anastomosis of the atretic oesophagus.

MATERIAL

The present series consists of 21 cases, seen between 1962 and 1972 ; 12 of them were male and

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9 female. Twenty of them had oesophageal atresia with distal tracheo-oesophageal fistula and one had atresia only.

OBSERVATIONS

Eight cases were diagnosed before feeding; 5 within 6 hours, 2 between 6 and 12 hours and 1 between 12 and 24 hours. Thirteen cases were diagnosed after feeding; 5 on the 2nd day, 5 on the 3rd day; 1 on the 4th day and 2 after the 4th day.

The most important aspect of oesophageal atresia is that it should be recognised as soon after birth as possible, for any delay inevitably leads to progressive pulmonary complications.

DIAGNOSIS :

The cardinal diagnostic features of oesophageal atresia are :

1) Hydramnios in the mother; the volume of liquor amnii was recorded in 14 cases—hydramnios was present in 10 mothers, it was absent in 4 and there was no record of this in the remaining 7 mothers. 2) Dribbling of mucus from the mouth; this is the most important clinical sign which leads one to suspect oesophageal atresia; 3) the arrest of a catheter in the thorax; and 4) radiological demonstration of a blind oesophageal pouch.

Oesophageal catheterisation—The arrest in the thorax of a catheter introduced through the nose or mouth confirms the diagnosis of oesophageal atresia provided the catheter is of sufficient diameter and stiffness. If not, it may coil up in the dilated upper oesophagus giving rise to a false impression of progress into the stomach or it may enter the larynx and pass unimpeded into the trachea and even enter the distal oesophagus through the fistula.

At Medical College Hospital Calcutta, one case of oesophageal atresia was found in the five-year period from July 1967 to June 1972 during which 30372 live babies were born. Routine oesophageal catheterisation was carried out between July 1970 and June 1971 during which time 5015 live babies were born. Of these 61 had respiratory distress; 30 of them recovered and 31 died. Oesophageal catheterisation was done in 4432 infants. 571 infants were given feeds before they were seen by us and tolerated the feeds well. 12 babies died before examination and were catheterised after death. No case of oesophageal atresia was detected.

At Ramakrishna Mission Seva Pratisthan, 5 cases of oesophageal atresia were found in the same period during which 29897 live babies were born. Throughout this period, oesophageal catheterisation was carried out by the department of paediatrics on all infants suspected of having oesophageal atresia (hydramnios in the mother and excessive dribbling of mucus from the mouth). These figures show that while the prompt oesophageal catheterisation results in more cases being diagnosed the actual incidence of oesophageal atresia in our community is very low compared to western communities, 1 in 12,000 as against 1 in 2,500 (Jones, 1940).

Radiological findings—Straight x-ray of the chest and the full length of the abdomen with the baby held erect and the oesophageal catheter *in situ* will show the catheter obstructed in the upper pouch and at the same time will indicate the presence of a fistula by showing gas in the stomach. Gas in the stomach was absent in only two of our 21 cases. Of the two, one was a premature baby in which the diagnosis was made before any gas could enter the gastro-intestinal tract; the fistula was later detected at autopsy. In the other case, there was no fistula as proved at gastrostomy.

Contrast media x-ray does not usually give any added information; on the contrary one case died and one case was made worse because of contrast media spilling into the lungs. Contrast media x-ray can be performed in doubtful cases with a very small amount of propyliodone (dionosil) 1-1.5 ml. pushed through a catheter whose tip has been cut so that there is only one opening at the tip. The syringe should be left attached for immediate suction after x-ray.

PROGNOSIS :

The three important factors affecting prognosis of babies with this anomaly are : i) Birth weight, ii) condition of the lungs and iii) associated anomalies.

The weight of the infants at the time of diagnosis showed that of our 21 cases, only 4 cases were above 2.4 kg.; 13 were between 1.8 to 2.5 kg. and 4 were below 1.8 kg.

Pneumonitis at the time of diagnosis was present in 13 cases. It was mild in 4, moderate in 3 and severe in 6.

Associated anomalies occurred in 6 cases; they were severe in 5 and were as follows : Major cardiac deformity and anorectal atresia-1, anorectal atresia-1, duodenal atresia-1, encephalomeningocoele and multiple vertebral defects-1 and complete cleft palate, involving the alveolus and lip-1.

The frequency of associated anomalies would have probably increased if autopsy had been done in all cases.

Considering the above items the babies were classified according to risk group as follows : Group A—Birthweight over 2.5 kg. and well—nil;

Group B_1—Birthweight between 1.8-2.5 kg. and well—4 ; Group B_2—Higher birthweight, moderate pneumonitis and/or congenital anomaly—7 ; Group C—Birthweight under 1.8 kg. or higher birthweight, severe pneumonitis and severe congenital anomaly—10 (modified from the classification of Waterston *et al.*, 1962).

PATHOLOGY :

Between the 3.5 and 8 mm. stage of the embryo the trachea and oesophagus are differentiated from the primitive foregut by two lateral ridges which appear and fuse longitudinally. If the fusion is misdirected or is incomplete, a variety of oesophageal defects occurs. Rarely, while the tracheobronchial tree develops normally, the two ends of the oesophagus fail to connect with each other. This was found in one of our cases (Type II of Vogt, cited by Fuhrman *et al.*, 1942). By far the commonest malformation is one where the upper part of the oesophagus forms a *cul de sac* above the level of the tracheal bifurcation and the upper end of the lower part communicates with the trachea. This anatomical arrangement was found in 20 out of our 21 cases (Type III B of Vogt, cited by Fuhrman *et al., loc. cit.*). The lower segments were found narrow and hypoplastic compared to the upper segments which were hypertrophied. It was possible to study in detail the anatomy in 15 cases at operation or autopsy. In 8 cases the fistula was situated just above the tracheal bifurcation and the upper oesophageal pouch was found very close to the site of the fistula. In one case the upper oesophageal pouch was found in the thorax but at a higher level. In two cases, the upper pouch was not found in the thorax at all. In two cases, the lower oesophagus opened at the carina. In two further cases, the fistula was high up the trachea and the upper and lower oesophagus had a common wall with an intervening septum in between (Fig. 1).

The anatomical peculiarity in the last 7 cases increased the technical difficulty of reconstruction.

CONCLUSION

Only two of the 21 patients of this series left hospital alive, these have been reported elsewhere (Chatterjee *et al.*, 1966, 1972). Our results are similar to those reported by Haight and Towsley (*loc. cit.*) from Detroit. In the intervening 30 years there has been phenomenal reduction of mortality and morbidity in most of the paediatric surgical centres of the world. Our lagging behind of 30 years is due probably to i) the low incidence of this anomaly in this part of the world and the small number of cases being diagnosed and treated, ii) late diagnosis of the cases resulting in poor general condition of the patients when they are presented to the surgeon, iii) high incidence of babies with low birthweight and multiple anomalies and iv) organisational weakness with reference to equipment and personnel.

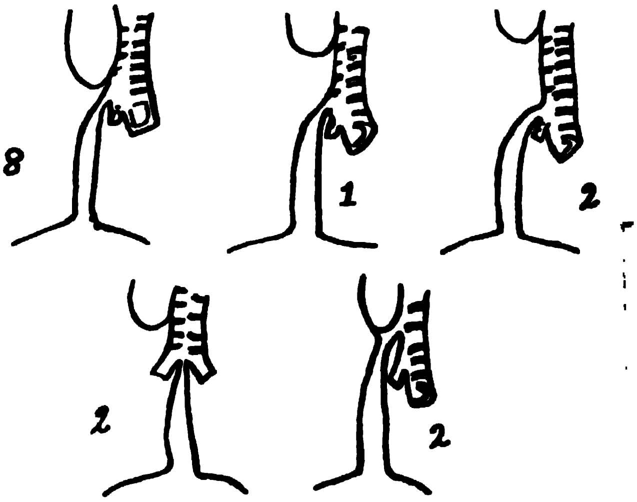

FIG. 1—SHOWING THE PATHOLOGICAL TYPES

ACKNOWLEDGMENT

We are grateful to the authorities of Nil Ratan Sircar Medical College and Hospital and Ramakrishna Mission Seva Pratisthan for kindly allowing us to use the clinical material and hospital data.

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2

Study of Liver in Clinical and Experimental Diabetes Mellitus

D. BANERJEE*

[Received for publication March 12, 1973]

The importance of liver in carbohydrate metabolism is too well known to be re-emphasised.

Air Force Central Medical Establishment, New Delhi

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oslin (1969) described its role in the aetiology of iabetes mellitus. This is more applicable for tropical diabetes which is in part due to defect in he storage and release of liver glycogen rather han an absolute insulin deficiency. The functional and morphological changes of liver attracted attenion of clinicians and pathologists alike for a long ime. Mead (1748, cited by Dube *et al.*, 1965) described fatty liver of diabetes in the eighteenth century. Pepper (1884) first described histological evidence of fatty infiltration in diabetic liver. Tulloch (1962) on the other hand did not find fatty changes in liver significantly attributable to diabetes mellitus. However, glycogen vacuolation was seen quite often. In his series of 65 cases, 10.7 per cent showed evidence of cirrhosis as opposed to 4.9 per cent amongst all autopsies. However, one third of his cases were children and young persons. As such, high incidence of cirrhosis of liver in Tulloch's (*loc. cit.*) series may not be significant.

In India Sarin and Bhu (1964), Dube *et al.* (*loc. cit.*) and Vaishnava (1970) published their observations on liver in diabetes mellitus. While Sarin and Bhu's (*loc. cit.*) cases were of juvenile onset, the diabetic state of the cases of all the above series were uncontrolled. Mukerjee *et al.* (1971) carried out a study of hepatic structure and function in uncontrolled and controlled diabetes mellitus. It was therefore considered worthwhile to undertake further study of liver functions and structure in treated cases of tropical diabetes mellitus to find out their correlation; and also, to produce experimental diabetes mellitus in mongrel dogs by pancreatectomy and observe the hepatic structure in autopsy findings after their death from acute untreated diabetes mellitus. The study was carried out at the Armed Forces Medical College, Poona and the associated Command Hospital Southern Command, Poona.

MATERIAL AND METHOD

Twenty cases of diabetes mellitus were selected for this study. A detailed history and clinical examination comprising economic condition, presenting symptoms, duration, age, sex, weight, severity of symptoms, presence or absence of complications, diet and treatment taken were noted. Cardiovascular, respiratory, CNS, fundus oculi, renal and gestro-intestinal systems were examined in detail and findings recorded. Patients having history of hepatic and nutritional disorders, jaundice, intake of alcohol and drugs, handling of chemicals and diabetic coma were not included in the study. Complete urinalysis and glucose tolerance tests were carried out to confirm the diagnosis.

Liver function tests including bromosulphthalein retention were carried out in all cases. These were followed by percutaneous punch biopsy of liver by Vim Silverman's needle. The tissues obtained were preserved in formol alcohol and sections were studied under light microscope after staining with hematoxylin-eosin, PAS for glycogen, Gomoni for reticulin structure and Van Gieson stain for fibrous tissue.

OBSERVATIONS

The income of this group of patients or their bread-winners was on an average between Rs. 500/- and Rs. 650/-.

Management—They were put on proper corrective/diabetic diet depending upon whether they are obese, underweight, desk or mannual workers. Out of the three younger patients two were treated with insulin (cases 1 and 8) and one (case 6) required phenphormin. Rest of the cases were treated with sulphonylureas. With the above regime, 17 cases were well controlled and 3 were poorly controlled as far as the diabetic state was concerned, no one had ketosis. Three of the cases (two females and one male) were of juvenile onset between the ages of 16 and 22 years. The remaining patient's were of maturity onset. The duration varied from 1 month to 9 months in 7 cases and from 1½ to 10 years in the rest. None had any gross complication except retinopathy. Mild neuropathy and infections were controlled easily. Hepatomegaly, more than 4 cm., was seen in two cases only. In seven patients there were no hepatic enlargement. In eleven the hepatomegaly was mild (2 cm.).

Liver function tests—Serum bilirubin was normal in all cases. Serum protein, less than 6 g. per cent, were seen in five cases of maturity onset. Out of these, in three cases the serum albumin was less than 3 g. per cent. The electrophoretic pattern of plasma proteins were normal in other cases. So also were the thymol turbidity and alkaline phosphatase. BSP test after 45 minutes showed 0 to 5 per cent retention.

Histology—The histology of liver was studied under fatty change (Fig. 1) nuclear vacuolation (Fig. 2), cytoplasmic glycogen vacuolation, reticulin structure and evidence of fibrosis (Figs. 3, 4). In 12 out of 20 cases, fatty changes were present in varying degrees. Fourteen patients showed mild to moderate degrees of nuclear vacuolation. Cytoplasmic glycogen vacuolation was present in twelve cases. It was extensive in one case and mild to moderate in eleven other cases including all the three cases of juvenile onset. Frank cirrhosis was not seen in any case though periportal fibrosis was

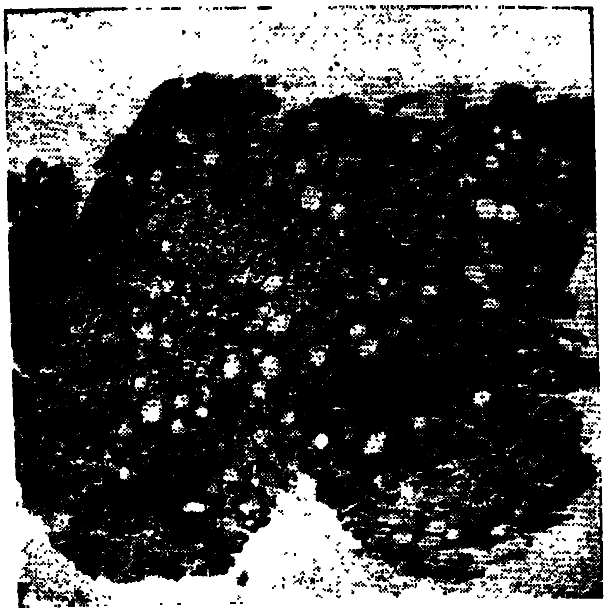

FIG. 1—SHOWING FATTY INFILTRATION

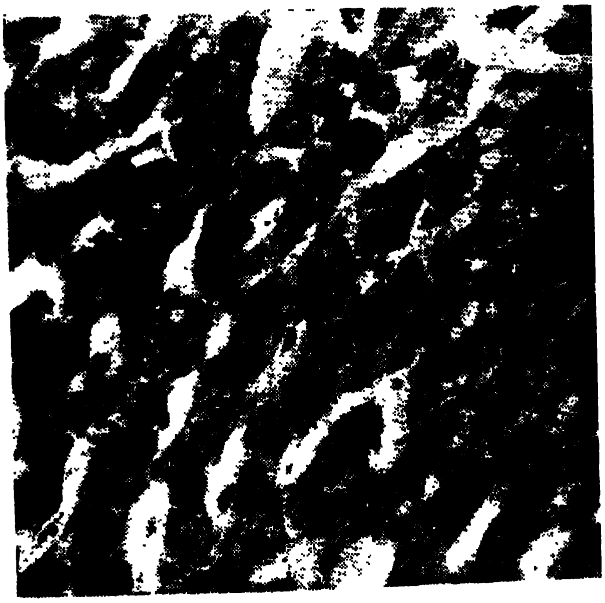

FIG. 2—SHOWING NUCLEAR VACUOLATION

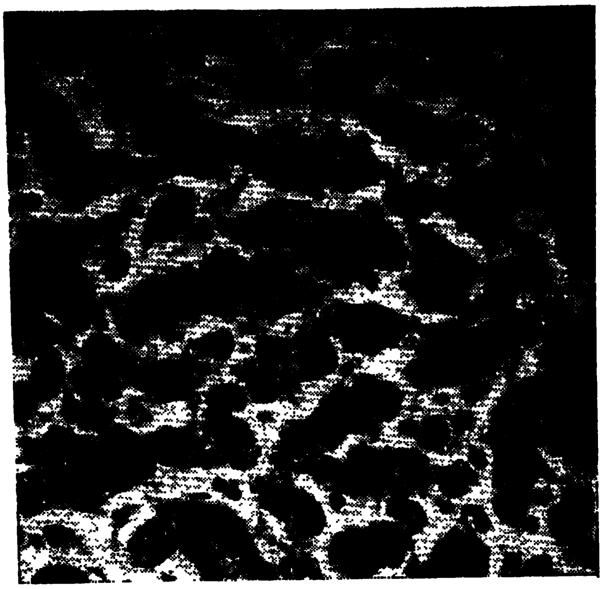

FIG. 3—SHOWING CYTOPLASMIC GLYCOGEN VACUOLATION

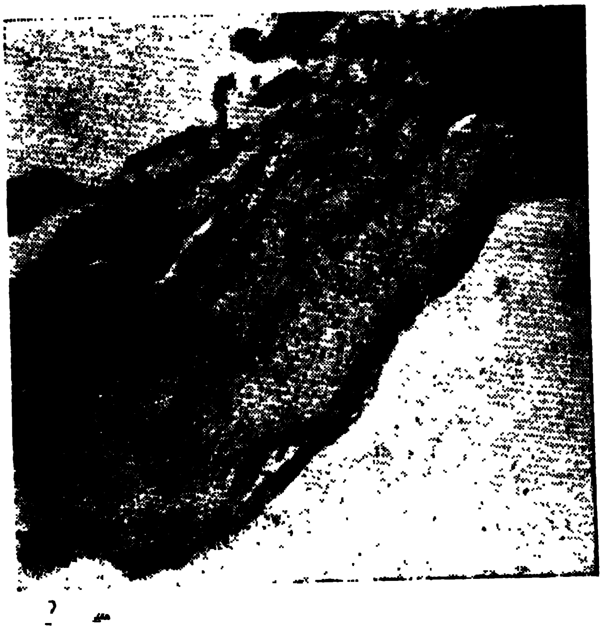

FIG. 4—SHOWING PERIPORTAL FIBROSIS

present in four cases of maturity onset of four to ten years' duration. Reticulin structure of liver parenchyma was normal in all cases.

Experimental—Four healthy adult mongrel male dogs were subjected to pancreatectomy under general anaesthesia and strict operation theatre asepsis. The dogs developed diabetes mellitus and died during second and third weeks after operation. They were not treated with any anti-diabetic drugs and were given normal food for dogs. Livers were taken out after death and subjected to histology. Except for slight post-mortem congestion, the liver histology was normal in all respects. Fatty changes, nuclear and cytoplasmic glycogen vacuolation were totally absent. This observation explains that glycogen vacuolation of nucleus and cytoplasm of hepatic cells, commonly found in human diabetes mellitus, are absent in acute diabetes of pancreatectomised mongrel dogs. The two conditions though neither identical nor comparable, the findings can however be explained thus :

In diabetes mellitus under treatment with insulin, there will be increase deposition of glycogen in liver cells because insulin inhibits the release of glucose by the liver in addition to accelerating the removal of glucose by peripheral tissues (Bearn *et al.*, 1952; Richard *et al.*, 1958). Similarly, tolbutamide in addition to causing release of insulin from islet cells, has also been described to cause release of free insulin from bound form and enhances the rate of utilisation of bound insulin (Antoniades *et al.*, 1963). Thus, insulin-like action of tolbutamide contributes to the increase of cytoplasmic glycogen in cases treated with the drug.

In pancreatectomised mongrel dogs which developed acute diabetes mellitus, such changes were not seen due to lack of insulin activity and very acute form of disease where the subject lived for a shorter period of time.

DISCUSSION

Tropical diabetes mellitus differs from diabetes in the West due to variations in racial, dietetic, nutritional and ecological factors. Due to illiteracy and lack of understanding, a tropical diabetic subject often goes to semistarvation diet to control glycosuria. This nutritional factor may be responsible for fatty changes in liver. As will be seen from Table 1, fatty chnges were observed in 60 per cent of cases and were neither correlated to severity of the disease nor to the degree of hepatomegaly.

Nuclear and cytoplasmic glycogen vacuolation which are more specific changes for diabetes mellitus were seen in varying degrees of severity. Sixty per cent cases including all the three cases of juvenile onset showed cytoplasmic glycogen vacuolation while seventy per cent had nuclear vacuolation. These two changes were neither complimentary to each other in the same person nor did they follow proportionately the pattern of severity of the disease or the size of hepatomegaly. Hepatomegaly by itself was not related proportionately to the duration and/or severity of the disease. These findings agree with those of Mukerjee *et al.* (*loc. cit.*). Preservation of normal reticulin pattern of hepatic parenchyma was observed in all cases. Periportal fibrosis and not true cirrhosis was observed in 20 per cent cases of long duration maturity onset diabetes. Findings of Macdonald and Mallony (1958) and Dube *et al.* (*loc. cit.*) agree with that of the present series.

SUMMARY

Twenty cases of diabetes mellitus (seventeen well controlled and three poorly controlled) with

TABLE 1—SHOWING DETAILED CLINICAL FINDINGS AND HISTOLOGY OF LIVER IN 20 CASES

Case No.	Age (in years)	Sex	Duration	Diabetic control* under drug therapy	Complication	Histology of liver Fatty change	Nuclear vacuolation	Cyto-plasmic glycogen vacuolation	Reticulin structure	Fibrosis	Hepato-megaly
1	16	F	1½ years	Poor	Nil	Nil	Moderate	Mild	Normal	Nil	Nil
2	44	M	6 years	Good	Neuropathy	Marked	Moderate	Mild	Normal	Periportal	Moderate
3	45	M	4 months	Poor	Nil	Moderate	Extensive	Nil	Normal	Nil	Mild
4	56	M	1½ years	Good	Retinopathy	Nil	Nil	Nil	Normal	Nil	Minimal
5	40	M	1 month	Good	Nil	Nil	Nil	Nil	Normal	Nil	Minimal
6	22	M	3 years	Good	Osteomyelitis, I.H.D.	Nil	Nil	Marked	Normal	Nil	Minimal
7	40	M	4 years	Good	Nil	Moderate	Moderate	Marked	Normal	Periportal	Mild
8	21	F	9 months	Fair	Nil	Nil	Moderate	Marked	Normal	Nil	Minimal
9	52	M	1 month	Good	Ischiorectal abscess, hypertension	Nil	Nil	Nil	Normal	Nil	Minimal
10	39	M	6 months	Good	Neuropathy, carbuncle	Mild	Mild	Nil	Normal	Nil	Minimal
11	60	F	10 years	Fair	Neuropathy	Mild	Mild	Mild	Normal	Periportal	Nil
12	46	M	1 month	Good	Nil	Nil	Nil	Nil	Normal	Nil	Nil
13	52	M	5 years	Good	Cervical spondylosis	Mild	Mild	Nil	Normal	Nil	Nil
14	32	F	4 years	Good	Pyelonephritis, pregnancy	Marked	Mild	Nil	Normal	Nil	Moderate
15	28	F	2 years	Good	Pregnancy	Mild	Mild	Mild	Normal	Nil	Minimal
16	48	M	3 years	Good	Retinopathy	Mild	Mild	Mild	Normal	Nil	Nil
17	38	M	9 months	Good	Nil	Nil	Nil	Nil	Normal	Nil	Nil
18	45	M	8 years	Fair	Nil	Mild	Mild	Nil	Normal	Periportal	Minimal
19	42	M	6 months	Poor	Nil	Mild	Moderate	Marked	Normal	Nil	Nil
20	46	F	3 years	Good	Nil	Mild	Mild	Mild	Normal	Nil	Minimal

* Good—Glucose toterane test (G.T.T.) normal
Fair—G.T.T. abnormal but fasting and 2 hours blood sugar normal
Poor—G.T.T. abnormal but fasting and post-prandial blood sugar after meals normal

or without hepatomegaly were subjected to liver function tests and liver biopsy.

Sixty per cent showed fatty infiltration. Sixty per cent, including all the three cases of juvenile onset type, had cytoplasmic glycogen vacuolation and 70 per cent showed nuclear vacuolation. These changes were not correlated with each other nor with severity of the disease or size of hepatomegaly. There were no cases showing cirrhosis of liver. Twenty per cent (all of long duration) showed periportal fibrosis. There were no gross disturbance of liver functions.

Histological picture of liver in pancreatectomised diabetes mellitus in mongrel dogs was normal possibly due to total lack of insulin activity. In tropical diabetes, the possible explanation for fatty infiltration and glycogen vacuolation in parenchyma and nuclei of hepatic cells have been discussed.

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3

Post-Cardioversion Drug Therapy in Cases of Atrial Fibrillation

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Ready restoration of sinus rhythm by cardioversion (electrical reversion) in cases of atrial fibrillation has become appreciably popular. But the maintenance of post conversion sinus rhythm for longer periods has not been encouraging (Radford and Evans, 1968; Szekely *et al.*, 1970). The duration of arrhythmia, the heart size, the effort intolerance, the aetiology and the premedication with quinidine (Szekely *et al.*, 1966; Halmos, 1966; Morris *et al.*, 1966; Rossi and Lown, 1967) have been considered important factors influencing the maintenance. There may be a host of adverse factors, known or hitherto unknown, whose baneful influence on the myocardium affects the duration of post-conversion sinus rhythm. If the known adverse factors are taken into account, the role of anti-arrhythmic drugs in maintenance of sinus rhythm merits critical study. It is with this purpose that in successfully electroconverted cases of atrial fibrillation, the suitability of various anti-arrhythmic drugs, e.g., quinidine, propranolol hydrochloride, procainamide and diphenylhydantoin, have been evaluated.

MATERIAL AND METHOD

The cases have been collected from hospital records. The patients of atrial fibrillation selected for cardioversion had quinidine 800 mg. daily in divided doses for 3 days prior to electrotherapy. After intravenous administration of thiopentone sodium or diazepam, a synchronised D.C. shock was delivered through Burdick's D.C. capacitor across the chest using anteroposterior electrodes. The successfully converted cases were kept on anti-arrhythmic drugs, like quinidine or propranolol or diphenylhydantoin, or procainamide. The dose schedule was: Quinidine 600-800 mg., propranolol hydrochloride 60 to 120 mg., diphenylhydantoin 400 mg., procainamide 1 g. daily in divided doses, depending on the age and weight of the patients. Twenty-seven patients had no drug therapy after cardioversion and eventually this served the purpose of control. The patients had subsequent

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check up at the end of 1 month, 3 months, one year and 1½ years. ECG recorded at each re-examination documented the change in heart rhythm.

The duration of arrhythmia, effort intolerance and aetiology were noted from the clinical records. Cardiothoracic ratio (CTR) was measured from the postero-anterior chest skiagram.

OBSERVATIONS

Age and sex—One hundred and fifty-five electroconverted cases of atrial fibrillation have been followed up for one and half years. The age of the patients ranged from 12 years to 67 years. The mean age of the male patients was 36.1 years and of the female 37 years. The male patients were in preponderance (M : F = 4.7 : 1). Out of 155 cases, 52 had mitral valvotomy, 2 had mitral valve replacement and 5 cases had pericardiectomy in the past. Surgical correction was performed about 6 to 24 weeks before the exact date of cardioversion. The rest were cases of non-operated rheumatic or coronary heart disease.

Conversion—All but two cases were successfully converted by energy output of 100 to 200 WS. These two cases required energy discharge up to 350 WS for reversion.

Post-conversion therapy—The distribution of post-conversion drug therapy was : 65 cases on quinidine, 18 cases on propranolol hydrochloride, 29 cases on procainamide, 16 on diphenylhydantoin and 27 cases had no drug.

Adverse reaction of quinidine compelled withdrawal of drug after one month in two cases of coronary heart disease (CHD) and one case of aortic regurgitation (AR). Out of these, one case of CHD had already reverted to fibrillation by the end of one month. The other case of CHD had grade II effort intolerance, CTR of 55 per cent, and had been fibrillating for less than one year. The case of AR had grade II effort intolerance, CTR of 56 per cent, and had atrial fibrillation for more than one year. Propranolol precipitated cardiac decompensation in one case of mitral regurgitation and the drug was withheld. This case had grade II effort intolerance, CTR of 54 per cent, and had been in fibrillation for more than a year. One case of mitral valve replacement died after 3 months of conversion possibly due to embolisation.

The maintenance of sinus rhythm with different drugs is shown in Table 1.

Table 2 shows the relationship between aetiology and drug therapy in maintenance of sinus rhythm.

Table 3 shows the relationship between drug therapy and effort intolerance.

TABLE 1—SHOWING PERCENTAGE INCIDENCE OF MAINTENANCE OF SINUS RHYTHM WITH DIFFERENT DRUGS

Group	Maintenance of sinus rhythm (%) at the end of				
	1 month	3 months	6 months	1 year	1½ years
Quinidine	64.6	37.0	29.2	23.0	20.0
Propranolol hydrochloride	61.1	16.6	16	11.1	11.1
Diphenylhydantoin	37.5	6.3	6.3	6.3	0
Procainamide	58.6	24.1	10.4	10.4	10.4
Control	48.2	18.5	8.1	8.1	8.1

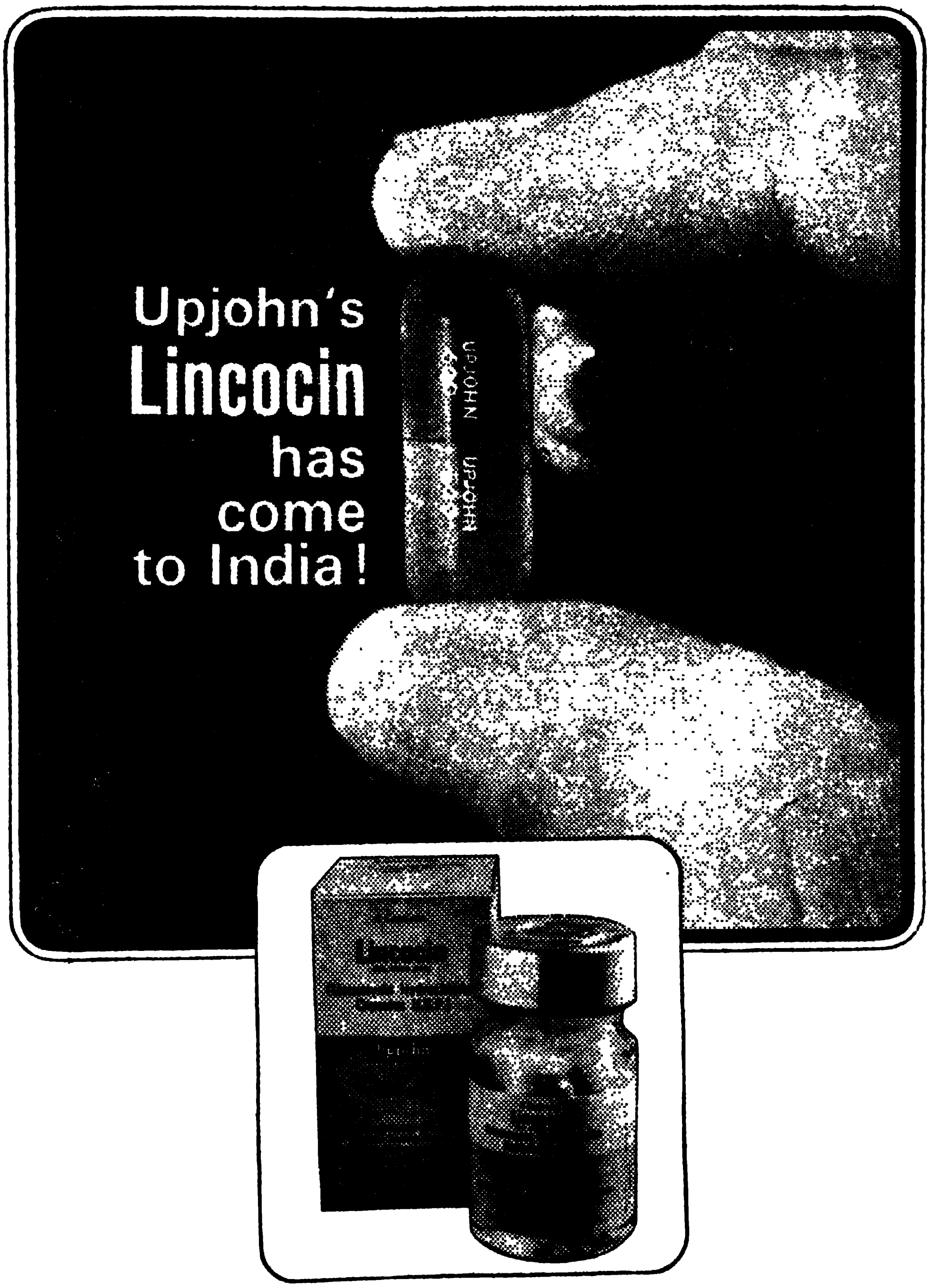
Table 4 shows the relationship between drug therapy and cardiac size.

Relationship between drug therapy and duration of fibrillation is shown in Table 5.

DISCUSSION

Among the operated cardiac cases, sinus rhythm could be maintained by the end of one month in 83.3 per cent, 70 per cent, 63.6 per cent cases of quinidine, propranolol and procainamide groups respectively (Table 2). In the control group, it was so in 55.5 per cent cases only. Diphenylhydantoin group had no advantage over control group. By the end of 3 months, however, this early success had declined to 58.3 per cent, 30 per cent, 45.4 per cent and 33.3 per cent in quinidine, propranolol, procainamide and control groups respectively. By the end of 1½ years, only quinidine (43.9 per cent) and procainamide groups (27.3 per cent) could score over control cases (22.2 per cent). It is quite clear that quinidine therapy was of special benefit in non-operated cardiac or CHD cases. In this group alone, sinus rhythm was retained even beyond 3 months. Contrary to the present observation, Morris *et al.* (1966) observed higher recurrence of atrial fibrillation in CHD cases. Maintenance of sinus rhythm for longer periods in non-rheumatic cases had been earlier reported by Hall and Wood (1968) and Macarthy *et al.* (1969). Radford and Evans (*loc. cit.*) and Morris *et al.* (1966) pointed out the poor maintenance of sinus rhythm in non-operated rheumatic cases. Szekely *et al.* (1970) found similar maintenance of sinus rhythm in operated and non-operated rheumatic heart cases even after putting them on quinidine. Yang *et el.* (1966) reported reversion to fibrillation in operated cases within one year.

In the face of effort intolerance of grade I while little difference was noticed between the control cases and drugged cases at the end of 1 month, a higher percentage of quinidine group retained



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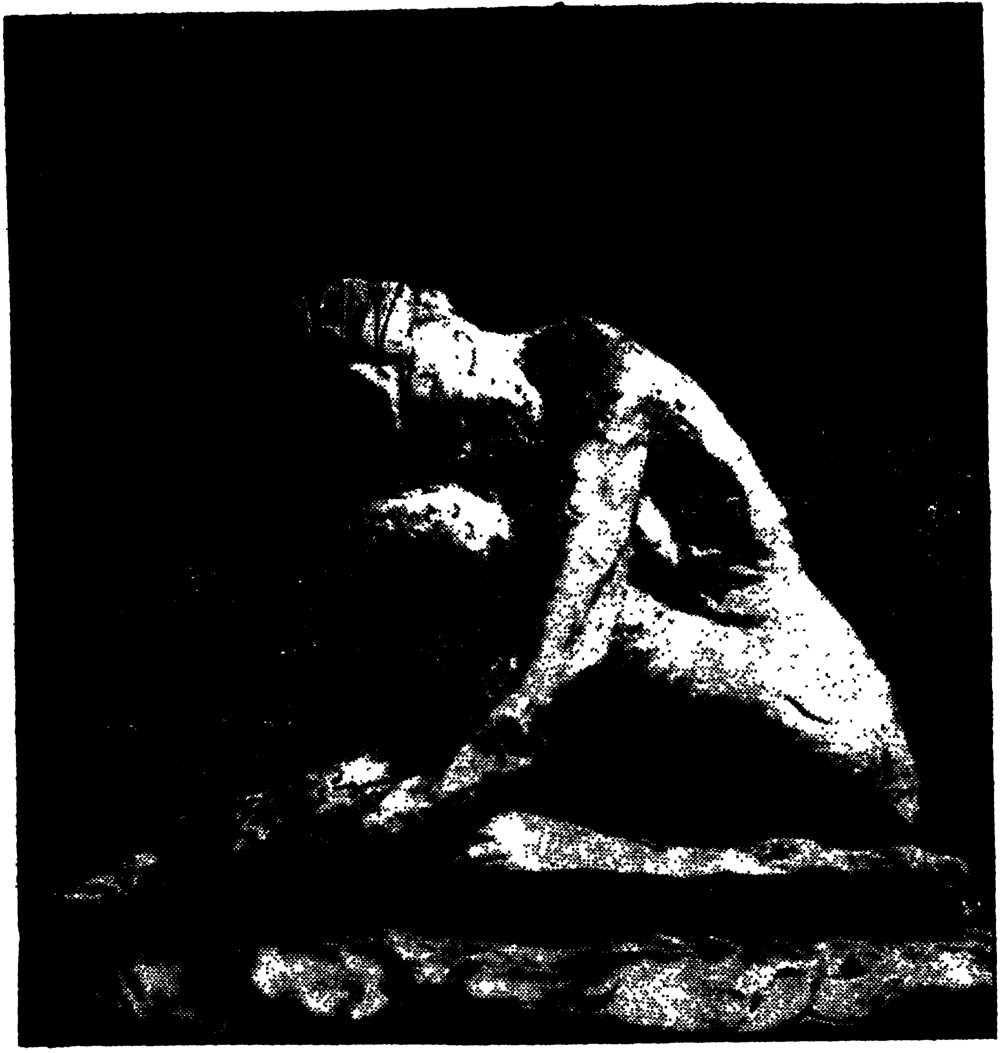

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TABLE 2—SHOWING CORRELATION BETWEEN AETIOLOGY AND DRUG THERAPY IN MAINTENANCE OF SINUS RHYTHM

Group	Aetiology	Total No. of cases	Maintenance of sinus rhythm at the end of									
			1 month		3 months		6 months		1 year		1½ years	
			No. of cases		No. of cases		No. of cases		No. of cases		No. of cases	
Quinidine	Operated :											
	PMV	20	16		10		10		8		7	
	P.Peri	2	2	(83.3)	2	(58.3)	2	(56.5)	2	(47.8)	2	(43.9)
	MVR	2	2		2		1		1		1	
	Non-Operated :											
	MS	10	5		2		0		0		0	
	MR	12	6	(45.5)	1	(18.2)	0	(6.1)	0		0	0
	AR	11	4		3		2		0		0	0
	Coronary heart disease :	8	7	(87.8)	4	(57.1)	4	(57.1)	4	(57.1)	3	(42.8)
Propranolol	Operated :											
	PMV	8	5	(70.0)	2	(30.0)	2	(30.0)	2	(20.0)	2	(20.0)
	P.Peri	2	2		1		1		0		0	
	Non-Operated :											
	MS	4	3	(50.0)	0		0		0		0	
	MR	4	1		0		0		0		0	
Diphenylhydantoin	Operated :											
	PMV	5	2	(40.0)	1	(20.0)	1	(20.0)	1	(20.0)	0	
	Non-Operated :											
	MS	3	1		0		0		0		0	
	MR	5	2	(36.4)	0		0		0		0	
	AR	3	1		0		0		0		0	
Procainamide	Operated :											
	PMV	10	6	(63.6)	5	(45.4)	3	(27.3)	3	(27.3)	3	(27.3)
	P.Peri	1	1		0		0		0		0	
	Non-Operated :											
	MS	6	3		1		0		0		0	
	MR	5	3	(50.0)	1	(12.5)	0		0		0	
	AR	5	2		0		0		0		0	
	Coronary heart disease	2	2	(100.0)	0		0		0		0	
Control	Operated :											
	PMV	9	5	(55.5)	3	(33.3)	2	(22.2)	2	(22.2)	2	(22.2)
	Non-Operated :											
	MS	2	1		0		0		0		0	
	MR	7	4	(46.6)	2	(13.3)	0		0		0	
	AR	6	2		0		0		0		0	
	Coronary heart disease	3	1	(33.3)	0		0		0		0	

PMV—Post-mitral valvotomy, P.Peri—Post-pericardiectomy, MVR—Mitral valve replacement, MS—Dominant mitral stenosis, MR—Dominant mitral regurgitation, AR—Dominant aortic regurgitation. Figures in parentheses indicate percentage

sinus rhythm in later months (Table 3). With grade IV effort intolerance, drug therapy made no mark. With grade II or III effort intolerance, only quinidine group showed advantage over control cases in long term follow-up. The fact that patients with grade III and IV effort intolerance failed to maintain sinus rhythm even if they were put on quinidine had already been reported by Morris *et al.* (1966). Quinidine exhibited (Table 4) difinite advantage over control group in the later months in those cases which had CTR of more than 55 per cent. Poor maintenance of sinus rhythm in cases with large hearts had been mentioned by Halmos (*loc. cit.*) and Morris *et al.* (1966) and has been confirmed by the present observation particularly when the drug used was other than quinidine.

The cases, fibrillating for more than 1 year (Table 5), had higher percentage of sinus rhythm in only quinidine group. In the beginning, the drug therapy showed no favourable effect in cases fibrillating for less than 1 year. But in these cases, quinidine or procainamide group had higher percentage of sinus rhythm in the later months. Longer duration of atrial fibrillation influences adversely the maintenance of sinus rhythm in spite of quinidine prophylaxis. This has been mentioned by many authors (Hills and Humphries, 1967; Resnekiv *et al.*, 1969; Szekeley *et al.*, 1970).

TABLE 3—SHOWING CORRELATION BETWEEN DRUG THERAPY AND EFFORT INTOLERANCE

Group	Effort intolerance	Total No. of cases	Sinus rhythm at the end of				
			1 month	3 months	6 months	1 year	1½ years
			No. of cases	No. of cases	No. of cases	No. of cases	No. of cases
Quinidine	Grade I	20	20 (100.0)	13 (65.0)	12 (63.2)	9 (47.4)	8 (42.1)
	Grade II	22	10 (45.4)	5 (25.0)	3 (15.0)	2 (10.0)	2 (10.0)
	Grade III	14	6 (42.8)	2 (12.2)	0	0	0
	Grade IV	2	0	0	0	0	0
	No intolerance	7	6 (85.7)	4 (57.1)	4 (57.1)	4 (57.1)	3 (42.8)
Propranolol	Grade I	8	6 (75.0)	2 (25.0)	2 (25.0)	2 (25.0)	0
	Grade II	8	3 (12.8)	0	0	0	0
	No intolerance	2	2 (100.0)	1 (50.0)	1 (50.0)	0	0
Diphenylhydantoin	Grade I	4	4 (100.0)	1 (25.0)	1 (25.0)	1 (25.0)	0
	Grade II	5	1 (20.0)	0	0	0	0
	Grade III	4	1 (25.0)	0	0	0	0
	Grade IV	3	0	0	0	0	0
Procainamide	Grade I	8	6 (75.0)	5 (62.5)	2 (25.0)	2 (25.0)	2 (25.0)
	Grade II	18	8 (34.4)	0	0	0	0
	Grade III	1	1 (100.0)	0	0	0	0
	No intolerance	2	2 (100.0)	2 (100.0)	1 (50.0)	1 (50.0)	1 (50.0)
Control	Grade I	8	7 (87.5)	3 (37.5)	2 (25.0)	2 (25.0)	2 (25.0)
	Grade II	11	2 (18.0)	0	0	0	0
	Grade III	4	0	0	0	0	0
	No intolerance	4	4 (100.0)	2 (50.0)	0	0	0

Figures in parentheses indicate percentage

TABLE 4—SHOWING RELATIONSHIP BETWEEN DRUG THERAPY AND HEART SIZE.

Group	Cardiothoracic ratio	Total No. of cases	Sinus rhythm at the end of				
			1 month	3 months	6 months	1 year	1½ years
			No. of cases	No. of cases	No. of cases	No. of cases	No. of cases
Quinidine	Up to 50%	13	10 (76.9)	8 (61.5)	5 (38.4)	5 (38.4)	5 (38.4)
	> 50 to 55%	32	24 (75.0)	13 (41.9)	12 (40.0)	8 (26.6)	7 (23.3)
	More than 55%	20	8 (40.0)	3 (15.8)	2 (10.6)	2 (10.6)	1 (5.3)
Propranolol	Up to 50%	8	6 (75.0)	2 (25.0)	2 (25.0)	1 (12.5)	1 (12.5)
	> 50 to 55%	10	5 (55.5)	1 (11.1)	1 (11.1)	1 (11.1)	1 (11.1)
Diphenylhydantoin	Up to 50%	10	4 (40.0)	1 (10.0)	1 (10.0)	1 (10.0)	0
	> 50 to 55%	3	2 (66.6)	0	0	0	0
	More than 55%	3	0	0	0	0	0
Procainamide	Up to 50%	18	10 (54.3)	7 (38.2)	1	1	1
	> 50 to 55%	9	6 (66.6)	0	2	2	2
	More than 55%	2	1 (50.0)	0	0	0	0
Control	Up to 50%	10	6 (60.0)	5 (50.0)	2 (20.0)	2 (20.0)	2 (20.0)
	> 50 to 55%	15	6 (40.0)	0	0	0	0
	More than 55%	2	1 (50.0)	0	0	0	0

Figures in parentheses indicate percentage

Halmos (*loc. cit.*), Hall and Wood, (*loc. cit.*), Korsgren *et al.* (cited by Hall and Wood, *loc. cit.*), Hurst *et al.* (1964) and Morris *et al.* (1964) observed rapid reversion of atrial fibrillation in the first three months after cardioversion. This has been confirmed by the present observation as well, but the fastest return to fibrillation was in the first month of cardioversion in all but quinidine and propranolol hydrochloride groups. The decline, after 3 months, was slower and the difference bet-

TABLE 5—SHOWING RELATIONSHIP BETWEEN DRUG THERAPY AND DURATION OF FIBRILLATION BEFORE CONVERSION

Group	Duration of arrhythmia	Total No. of cases	Sinus rhythm at the end of				
			1 month	3 months	6 months	1 year	1½ years
			No. of cases	No. of cases	No. of cases	No. of cases	No. of cases
Quinidine	Less than 1 year	28	19 (67.8)	13 (48.1)	12 (44.4)	10 (37.0)	10 (37.0)
	More than 1 year	37	23 (62.1)	11 (30.5)	7 (20.0)	5 (14.3)	3 (8.5)
Propranolol	Less than 1 year	10	6 (60.0)	1 (10.0)	1 (10.0)	1 (10.0)	1 (10.0)
	More than 1 year	11	3 (27.2)	0	0	0	0
Diphenylhydantoin	Less than 1 year	5	3 (60.0)	1 (20.0)	1 (20.0)	1 (20.0)	0
	More than 1 year	11	3 (27.2)	0	0	0	0
Procainamide	Less than 1 year	11	10 (90.9)	6 (54.5)	3 (27.2)	3 (27.2)	3 (27.2)
	More than 1 year	18	7 (38.8)	1 (5.4)	0	0	0
Control	Less than 1 year	15	10 (66.6)	4 (26.6)	2 (13.3)	2 (13.3)	2 (13.3)
	More than 1 year	12	3 (25.0)	1 (8.3)	0	0	0

Figures in parentheses indicate percentage

ween the drug and the control groups got narrowed. The apparent beneficial effect of quinidine or procainamide was not statistically significant. None of the differences noted throughout the follow-up were significant ($P_e>0.05$) and hence no preferable effect of the drug, as compared to the control group, is suggested by the observed data. However, Lown *et al.* (1963), Oram and Davis (1964), Killip and Yormak (1965), Resnekov *et al.* (*loc. cit.*), Radford and Evans (*loc. cit.*), Hurst *et al.* (*loc. cit.*), Szekely *et al.* (1966, 1970), Rossi and Lown (*loc. cit.*), Hartel *et al.* (1970), and Hall and Wood (*loc. cit.*) observed longer maintenance of sinus rhythm in those cases which were on quinidine after cardioversion. Bjerkehend and Oringo (cited by Szekely *et al.*, 1970), Scott and Pantridge (1967), Halmos (*loc. cit.*), Gunning *et al.* (1970) found no significant advantage in keeping the patient on quinidine after conversion. β-adrenergic blocking agent (propranolol) has been reported ineffective in prolonging the sinus rhythm (Tsolakas *et al.*, 1964; Shrivastava *et al.*, 1972). Szekely *et al.* (1970) observed that procainamide was not helpful in prolonging the sinus rhythm. The experimental success of diphenylhydantoin in abolishing atrial fibrillation was mentioned by Scherf *et al.* (1960). Conn (1965) could not obtain useful therapeutic effect of this drug in cases of atrial fibrillation and in the present series the drug has never shown beneficial effect in maintaining sinus rhythm. Among the various drugs evaluated, quinidine is the only drug which appears to have favourably modified the maintenance of sinus rhythm to some extent. Considering the faster rate of reversion in the first three months, a supportive anti-arrhythmic therapy with quinidine for one to three months seems a very sound approach. The use of quinidine becomes more desirable in those cases where adverse factors are operating.

SUMMARY

One hundred and fifty-five successfully electroconverted cases of atrial fibrillation have been followed up for 1½ years. Sixty-five cases had quinidine, 18 had propranolol, 29 had procainamide, 16 had diphenylhydantoin as post-conversion drug therapy. Twenty-seven cases, followed up without drug, served as control.

By the end of 1 month, 64.6 per cent, 61.1 per cent, 37.5 per cent, 58.6 per cent and 48.2 per cent cases of quinidine, propranolol, diphenylhydantoin, procainamide and control groups respectively maintained sinus rhythm (Table 1). By the end of 3 months, sinus rhythm persisted in 37.0 per cent, 16.6 per cent, 6.3 per cent, 24.1 per cent and 18.5 per cent cases of quinidine, propranolol, diphenylhydantoin. procainamide and control groups respectively. By the end of 1½ years, sinus rhythm continued only in 20.0 per cent, 11.1 per cent, 0 per cent, 10.4 per cent and 8.1 per cent cases of quinidine, propranolol, diphenylhydantoin, procainamide and control cases respectively.

Reversion to atrial fibrillation was faster in the first month in all the cases except those who continued with quinidine or propranolol. After 3 months the declination was slow.

A supportive anti-arrhythmic therapy with quinidine appears to influence favourably the maintenance of sinus rhythm. The use of quinidine as post-conversion drug therapy is more significant in those cases where adverse factors are operating.

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4

Serum Cholesterol in Relation to Blood Groups in Ischaemic Heart Disease

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Ischaemic heart disease is usually associated with hypercholesterolaemia. The concentration of cholesterol in blood is known to be influenced by a variety of factors. Many attempts have been made to correlate the serum or blood cholesterol levels with age, diet or disease. But, the association of ABO blood group with serum cholesterol in normal subjects has not been extensively reported except in a few studies.

Srivastava and Sinha (1966) reported that there is no significant association between ABO blood group and serum cholesterol. But, in 1969, Oliver *et al.*, Langman *et al.* and Banerjee and Saha separately claimed the relationship between ABO blood group and serum cholesterol level in the survey carried out in healthy blood donors.

Bronte-Stewart *et al.* (1962) attempted to differentiate the role of genetic, environmental factor, diet, stress, exercise, etc., in the aetiology of ischaemic heart disease and also the blood group distribution in those patients. They found a highly significant association between the ABO blood group and ischaemic heart disease. Oliver and Cumming (1962) showed in a study of patients with ischaemic heart disease and controls that there was no significant predominance of group A and group B over group O in those patients and there was no deviation from the distribution in control group. Epidemiological investigations have shown that within a given population the incidence of coronary artery disease is a function of certain identifiable risks (Kagan *et al.*, 1963).

A sound and satisfactory relation is still to be established, however, as there has been much controversy in the published reports. It was, therefore, thought worthwhile to screen the patients of ischaemic heart disease and controls for their blood cholesterol levels, in order of blood groups. The ideal population group was available only in newborn babies as the adult population groups were liable to vary in their dietary habits and physical activity which might affect their serum cholesterol levels.

MATERIAL AND METHOD

The present investigation was carried out on the sample of serum and citrated blood of 44 patients of ischaemic heart disease and 288 samples of citrated blood along with the serum taken from the umbilical cord. The sample of blood was collected from the patients of the different hospitals at Calcutta.

About 5 ml. of blood was collected in a sterile test tube without any anticoagulant and allowed to clot. The serum was separated out by centrifuging the tube at a rate of 3,000 r.p.m. The retracted clot settled to the bottom and a clear straw coloured sample of serum was obtained. The cholesterol content of this serum was estimated by the method of Henly (1957) and Zak *et al.* (1954).

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For the determination of blood group, on the cord blood of newborn babies, blood was collected with sodium citrate to prevent the coagulation. Soon after delivery the umbilical cord was clamped at two places and cut in between. The clamp towards the placenta was opened and the blood was collected from the cord in a sterile test tube containing sodium citrate to prevent coagulation. The blood group was determined by observing the reaction between the red cells and a sample of serum containing known agglutinin (Whitby and Britton, 1969).

RESULTS

Serum cholesterol level was investigated in the cord blood of newborn babies along with determination of their blood groups. It was observed that serum cholesterol level was higher in babies belonging to group A than other groups. The mean serum cholesterol level of group A serum was 99.76 mg. per 100 ml. having a standard deviation of 0.875 whereas that of group B serum was 69.58 mg. per 100 ml. having a standard deviation of 5.95, group AB serum was 68.33 mg. per 100 ml. having a standard deviation of 2.25 and group O serum was 54.83 mg. per 100 ml. having a standard deviation of 2.13 (Table 1).

TABLE 1—SHOWING SERUM CHOLESTEROL LEVEL IN THE CORD BLOOD OF DIFFERENT BLOOD GROUPS

Blood group	Number of subjects	Mean serum cholesterol level (mg./100 ml.)	Standard deviation ±
A	84	99.76	0.875
B	91	69.58	5.953
AB	29	68.33	2.258
O	84	54.83	2.138

The tf-value was 47.80 when the serum cholesterol level was compared between group A and B and it was 71.8 between group A and AB and 178.00 between group A and O.

Serum cholesterol was also investigated in the serum of ischaemic heart disease cases along with determination of their blood group. It was observed that the mean serum cholesterol level of cases belonging to group A was 302.71 mg. per 100 ml. having a standard deviation of 42.68 whereas that of cases belonging to group B was 258.00 mg. per 100 ml. having a standard deviation of 37.41; cases belonging to group AB was 233.54 mg. per 100 ml. having a standard deviation of 30.95 and cases belonging to group O was 200.28 mg. per 100 ml. having a standard deviation of 19.08 respectively (Table 2).

TABLE 2—SHOWING SERUM CHOLESTEROL LEVEL IN ISCHAEMIC HEART DISEASE OF DIFFERENT BLOOD GROUPS

Blood group	Number of subjects	Mean serum cholesterol level (mg./100 ml.)	Standard deviation ±
A	14	302.71	42.68
B	12	258.00	37.41
AB	11	233.54	30.95
O	7	200.28	19.08

Statistical analysis showed that the difference of mean serum cholesterol level between group A and B was 44.8 which was a clear indication of higher level of serum cholesterol in group A patients. This increase of serum cholesterol was significant at 1 per cent level. Similarly the difference of mean serum cholesterol level between group A and AB was 69.2 which was also an indication of higher serum cholesterol level in group A. The increase was significant at 0.1 per cent level.

DISCUSSION

Serum cholesterol level was analysed in different blood groups to find out if there was any influence of this factor on serum cholesterol levels. From Table 1, it was observed that in the A group persons the serum cholesterol level was maximum and in the O group it had a minimum level. However, Langman *et al.* (*loc. cit.*) stated similar findings in their reported data. According to them, serum cholesterol level varied with ABO blood group, being higher in those of group A than in those of group O, group B, or group AB supported the suggestion that there was an inverse correlation between serum cholesterol concentration and genetic factors associated with the appearance of intestinal alkaline phosphatase in the serum. Oliver *et al.* (*loc. cit.*) also reported the same findings.

The relationship might also be influenced by diet, being most obvious after a fatty meal but unaffected by protein or carbohydrate consumption. Most of the cholesterol in serum seemed to be derived from hepatic synthesis, but the small intestinal cell had a minor influence through its role in fat absorption.

Saha and Banerjee (1971) did the same to establish the facts that there was a possible association of blood groups and serum cholesterol. But they failed to observe such an association. They also took cord blood as in the present investigation to minimise the environmental influences. According to them, there was an interesting association between ABO blood group and serum esterified cholesterol levels only. Moreover, Banerjee and Saha (1969) concluded that there was no association of ABO blood groups with serum cholesterol level excepting that group A subjects exhibited significantly higher level of cholesterol esters than that of B group ones.

Another interesting finding was obtained from the present investigation of the blood groups of the patients of ischaemic heart disease. Blood groups were determined in 44 cases along with the estimation of serum cholesterol. The serum cholesterol level of group A patients were higher at 1 per cent significant level than those of group B patients and higher at 0.1 per cent significant level than those of group AB and group O. Again, the serum cholesterol level of group B persons was higher than that of group O persons at 1 per cent significant level. Hence, it might be stated that the incidence of ischaemic heart disease results in persons of higher blood cholesterol level. Moreover, though 14 cases had ischaemic heart disease yet, from the present investigation it might be stated that group A persons were more susceptible to ischaemic heart disease.

Similar finding was reported by Langman *et. al.* (*loc. cit.*). According to them it was generally accepted that obese people were more prone to the development of hypercholesterolaemia. Moreover, there was a familial and probably genetic component influencing liability to the disease. Thus, it was felt that correlation of serum cholesterol with blood groups might serve as an important parameter in determining the predisposition to certain pathological conditions. But, according to Havlik *et al.* (1969) blood groups did not seem to be related to a difference in the prevalence of the diseases or any difference in short term mortality. This paradoxical relationship between prevalence and incidence could be explained by differential long term survivors.

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PRACTITIONERS' SERIES

Volvulus Caecum

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In our country volvulus of the gastro-intestinal tract is one of the commonest causes of acute intestinal obstruction. However, the frequent sites where volvulus occurs are the small bowel and the sigmoid colon.

Volvulus of the caecum has been found to be quite rare. The present study includes 27 cases seen in Gandhi Memorial and Associated Hospitals, Lucknow during an 11-year period from 1962-1972 and this relatively greater number has prompted us to study the features of this condition, so that the diagnosis is kept in view and better results achieved.

CLINICAL ASPECTS

There were 21 male and 6 female patients, the M:F ratio being 3.5:1. The age ranged from 4 days to 60 years with a mean of 30.5 years. Maximum number of cases were encountered in the 2nd and 3rd decades.

History—The time of presentation after the onset of symptoms varied from 20 hours to 15 days with a mean of 4 days. The symptoms included absolute constipation (26 cases), pain (25 cases), distension of abdomen (19 cases), vomiting (19 cases) and a moving lump in abdomen (3 cases). Past history of two similar attacks 5 years and 2 years back, relieved spontaneously, was obtainable in one case. Another case had history of recurrent attacks of pain and distension for 3 years. A third case had ileotransverse colostomy for an impassable stricture of ileum 5 years back.

Physical examination—On examination, abdominal distension of varying degrees was seen in 26 cases, 15 of whom had an irregular distension and the rest had generalised distension. Localised hyper-resonance was encountered in 14 cases. In 12 patients tenderness and guarding was present. Ten cases gave a feeling of emptiness in the right iliac fossa. Visible peristalsis was seen in 9 cases. Increased bowel sounds were heard in 14 cases, while in 4 cases bowel sounds were absent. Masking of the liver dullness was present in one case.

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Investigations—In 22 cases a plain skiagram of the abdomen was done. On the basis of clinical and radiological findings, 11 of these cases were diagnosed pre-operatively as cases of volvulus caecum, the others being variously diagnosed as large bowel obstruction (5 cases), volvulus sigmoid (1 case), small bowel obstruction (4 cases) and volvulus neonatorum (1 case).

In one case of chronic duodenal obstruction, barium meal and enema studies were carried out. A diagnosis of non-rotation of mid-gut was entertained and confirmed on subsequent laparotomy. In addition, findings of a chronic volvulus caecum were come across.

MANAGEMENT

Four cases underwent surgery without radiological obstruction and in the other two, diagnosis of perforated duodenal ulcer and volvulus sigmoid were entertained on clinical grounds.

All the cases were subjected to laparotomy. A mobile ileocolic loop with a common mesentery was the finding in all cases. Sixteen cases showed a clockwise twist of the ileocolic loop and in two cases it was anticlockwise. In 9 other cases the direction of the twist was not noted. Seven cases had frank gangrene of the involved bowel segment while 4 cases showed a patchy necrosis of the caecal wall. Non-rotation of the mid-gut was encountered in 4 cases. Three cases had congenital peritoneal bands and 1 case has had previous ileotransverse colostomy. In one case a volvulus of the transverse colon was an additional feature.

Treatment included resection of the gangrenous loop with end to end ileocolic anastomosis in 4 cases, resection with exteriorisation in 3 cases, caecopexy in 10 cases and caecostomy in 10 cases. Three cases had an additional appendicectomy.

Overall mortality was 33 per cent. In cases with gangrene, the mortality was 71 per cent. Only 2 out of 4 cases who underwent resection with anastomosis survived and none of the 3 cases who underwent resection with exteriorisation survived. In 10 cases who had caecopexy only 1 case died and out of 10 cases of caecostomy 3 died and 7 survived.

DISCUSSION

The term volvulus caecum is misleading since in most cases a variable length of the ascending colon and terminal ileum is also involved. Wolfer *et al.* (1942) suggested that the condition could better be termed 'volvulus of the right colon'. Banerji (1951) suggested another descriptive heading viz., 'torsion of the mesentery with involvement of the ileocolic loop', but the term is so entrenched in the literature that it is difficult to root it out.

Aetiology—The essential predisposing factor is the presence of a mobile ileocolic loop with a long mesentery without which the twist cannot occur. This was present in all cases of the present series. Wolfer *et al.* (*loc. cit.*), in an anatomical study of adult cadavers, found this mobile loop in 11.2 per cent while Banerji (*loc. cit.*) found the incidence to be 5.2 per cent in 368 laparotomies. Sometimes, this abnormal mobility may be due to complete non-rotation (Holman, 1910; Butler, 1958; Armitage, 1961) as was seen in four cases of the present series.

The other predisposing factors that have been described include abnormal fixation of the ascending colon by a band (Krippaehne *et al.*, 1967) and postoperative adhesions (Jordan and Beahrs, 1953; Hjelmstedt, 1959; Villet, 1959; Hendrick, 1964). Besides these, some precipitating factors like obstructive lesions of the left colon (Wilson *et al.*, 1954; Villet, *loc. cit.*), high roughage diet (Hjelmstedt, *loc. cit.*), chronic constipation (Villet, *loc. cit.;* Hendrick, *loc. cit.*), pregnancy (Sheldon, 1944; Russell, 1953) and fractures in the elderly (Krippaehne *et al.*, *loc. cit.*) may start an attack when a mobile caecum is already present.

Pathology—Banerji (*loc. cit.*) suggested that the essential pathology in volvulus caecum is a torsion of the ileocolic mesentery and that the displacement of the caecum is only a part of this mass displacement and is dependent on the length o the mobile segment. The doubled up mesenteric border crosses the ascending colon and presses on it resulting in a closed loop obstruction of the caecum as well as obstruction of the ileum, the latter being due to occlusion of the ileocaecal orifice. The caecum thus becomes grossly distended and may ultimately show necrosis and perforation The obstructed ileum also distends and show vigorous peristalsis till exhaustion supervenes and in very late cases it may also show necrotic patches The site where the mesentery presses on the ascending colon may show just a pressure mark or in advanced cases ischaemic or necrotic bands.

Clinical features—The age, in the presen series, is lower than that reported in other serie (Gardiner, 1947; Villet, *loc. cit.;* Krippaehne *et al.* *loc. cit.*). The sex ratio of 3.5 : 1 in favour o males corresponds to that of Gardiner (*loc. cit.* who found this lesion 3 times more common in males. Villet (*loc. cit.*) reported the sex incidence as 2 : 1 in favour of females. Most workers however, found an equal sex incidence.

Generalised abdominal pain, absolute constipation and vomiting are the most frequent clinical features. Recurrent attacks have been described by Villet (*loc. cit.*) and such a history was obtained in two cases of the present series as well. Rectal bleeding, recorded by May (1966) and Krippaehne *et al.* (*loc. cit.*), was not seen in any of the cases of the present series. Banerji (*loc. cit.*) laid stress on the finding of emptiness in the right iliac fossa. In only 10 cases of the present series was this sign elicited with any certainty and only when radiological correlation was obtained did it help in clinical diagnosis.

Radiology—A number of radiological features have been documented (McGraw *et al.*, 1948; Abrams and Wass, 1953; Figiel and Figiel, 1953; Frimann-Dahl, 1954). The presence of a large gas shadow in an abnormal position with a single fluid level has been found to be useful in diagnosing these cases (Fig. 1). Some cases in the present series showed radiographic features which suggested small bowel obstruction (Fig. 2) or large bowel obstruction without any suspicion of caecal volvulus. On the whole, 11 out of 27 cases were diagnosed pre-operatively as compared to 17 out of 19 by Krippaehne *et al.* (*loc. cit.*).

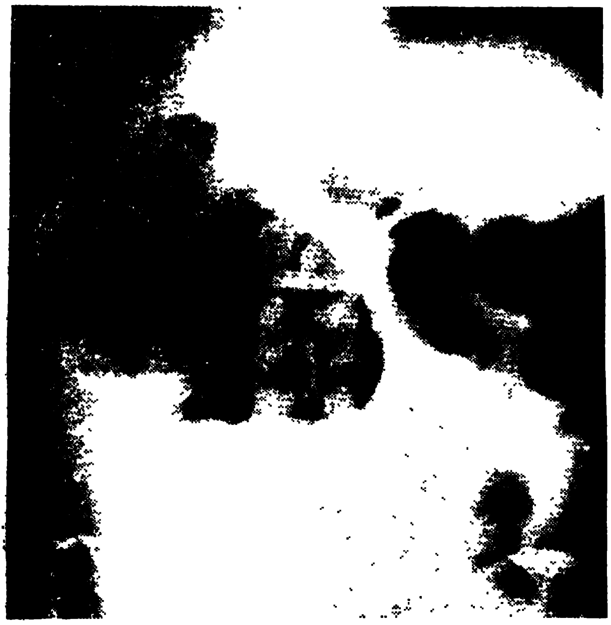

FIG. 1—SHOWING A LARGE GAS SHADOW WITH FLUID LEVEL IN EPIGASTRIUM

Treatment—For a non-viable loop, right hemicolectomy is most satisfactory. Exteriorisation has been suggested for patients with low general condition by Young *et al.* (1947) but was found to carry a higher mortality by Villet (*loc. cit.*). This has been the case in the present series as well.

For a viable bowel, the procedures include detorsion alone, caecopexy, caecostomy and right

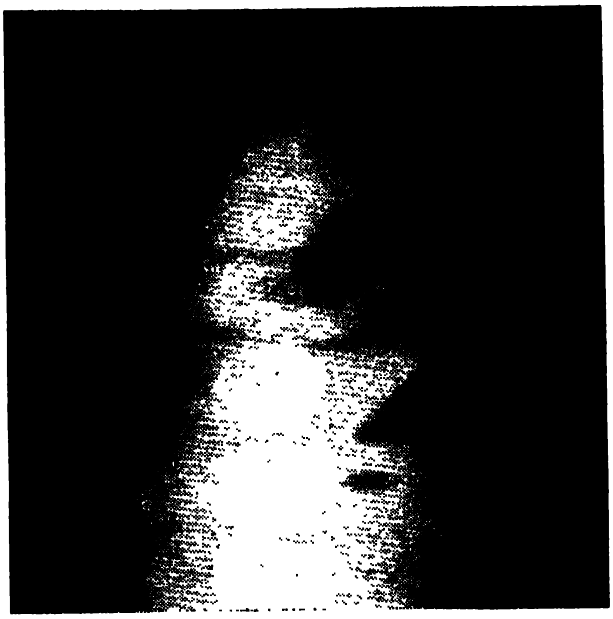

FIG. 2—SHOWING PLAIN SKIAGRAM OF ABDOMEN WITH FINDINGS ESSENTIALLY OF A SMALL BOWEL OBSTRUCTION

hemicolectomy. The last one is the only procedure which guarantees against recurrence but may have a higher mortality. With other procedures, recurrences have been reported by Nelson and Bowers (1956) and Hjelmstedt (*loc. cit.*). Saint (1958) found a completely mobile caecum one year after caecopexy.

Mortality—The mortality figures are variable. Earlier series reported rates of 20 to 40 per cent (Hjelmstedt, *loc. cit.*) but figures as low as 10 per cent have been reported recently by Wilson (1965) and Peterson (1967). The mortality of 33 per cent in the present series corresponds to 36 per cent reported by Krippaehne *et al.* (*loc. cit.*). Banerji (*loc. cit.*) reported a mortality rate of 38.4 per cent.

SUMMARY

Twenty-seven cases of volvulus caecum were admitted to the Gandhi Memorial and Associated Hospitals, Lucknow over a period of 11 years. The condition was found to be commoner in males and more often in second and third decades. An abnormally mobile ileocolic loop was seen in all cases. In 11 cases, pre-operative diagnosis was possible. Right hemicolectomy was found to be better than exteriorisation in cases with gangrene. In cases with viable gut—caecopexy or if gross distension of caecum was present, caecostomy were found to be the treatments of choice.

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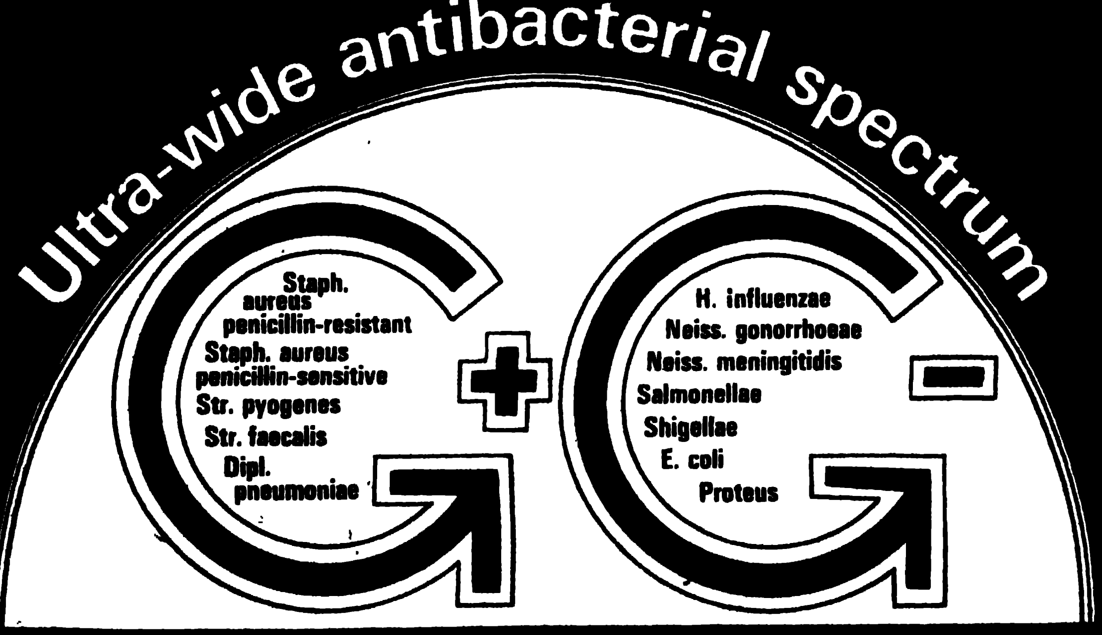

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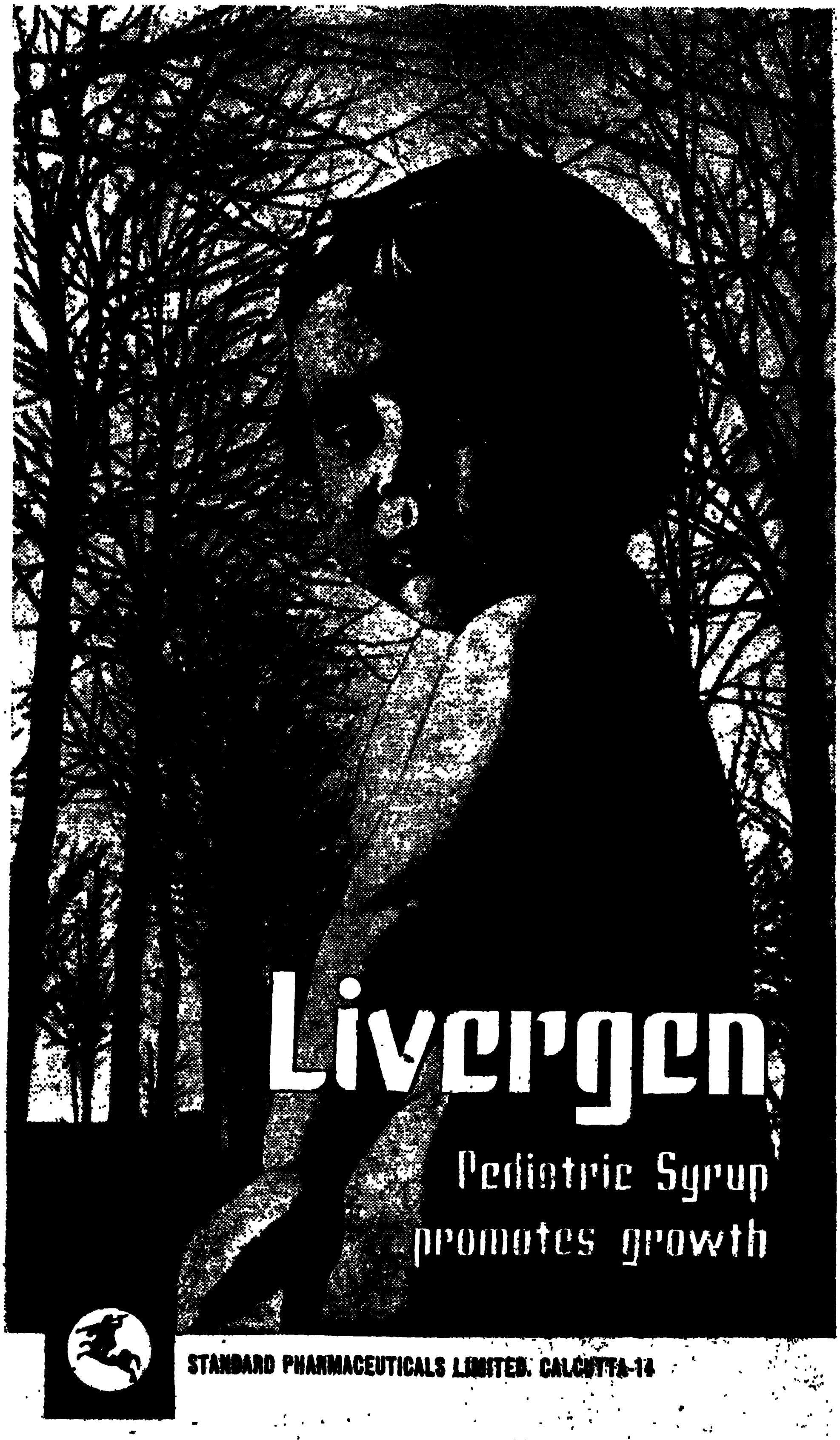
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CASE NOTES

1

A Case of Pachydermoperiostosis

(Idiopathic Hypertrophic Osteoarthropathy)

A. K. ROY CHOUDHURY[*], D. SAMANTA[**]
S. K. DUTTA[***], N. K. ROY CHOUDHURY[****]

Idiopathic hypertrophic osteoarthropathy was first described by Friedreich in 1868 and thereafter, particularly following the publications of Touraine and Solente (1935) and Touraine *et al.* (1935) many such cases have been reported (Roy, 1936; Vague, 1948; Vague, 1950; Findlay and Oosthuizen, 1951; Berk, 1952; Angel, 1957; Baldwin, 1959) under the various names of which pachydermoperiostosis given by Vague (1948) appears to be most appropriate as it encompasses both the characteristic changes—thickening of the soft tissue and of the periosteum—found in this disorder.

Soft tissue thickening commonly occurs in the scalp, face and distal part of the extremities. Subperiosteal new bone formation occurs in mild or moderate cases in the metacarpals, metatarsals, phalanges and in the distal ends of long tubular bones and in severe cases it may involve any bone except the cranium.

Detailed description of the clinical features has been given by Touraine and Solente (*loc. cit.*) and Touraine *et al.* (*loc. cit.*). It is a hereditary disorder affecting males more often than females either before or after puberty. The onset is insidious, the progress is slow and the course is often self-limited. Excessive sweating, particularly of the hands and feet, and progressively increasing painless enlargement of the distal part of the extremities are the usual presenting symptoms. Physical examination shows changes in the scalp, face and extremities. The scalp is thickened and thrown into many vertical parallel folds described as "bull-dog scalp" or "cutis vertices gyrata" (Touraine *et al., loc. cit.*; Renander, 1937). The palpebral tissue is thickened, the skin of the face is greasy and the prominent transverse and vertical folds on the forehead separated by deep furrows give the patient a "worried and angry look". The extremities show marked clubbing of the terminal phalanges, "paw-like" or "spade-like" enlargement of the hands and feet and cylindrical swelling of the distal end of the forearms and legs.

Biochemical investigations usually carried out to study the disorders of bones do not reveal any abnormality. X-ray of the skull is essentially normal including the size of the sella and that of the affected long tubular bones, metacarpals, metatarsals and phalanges shows in mild cases diffuse periosteal calcification having ragged outline. In long standing or unusually severe cases thickening of the cortex of the tubular bones may also be seen.

Histological examination of the affected bone shows formation of new bone in between the periosteum and cortex. The subperiosteal layer of new bone gradually merges imperceptibly with the compact layer of the cortex. The skin shows hyperkeratosis and parakeratosis of the epidermis, hyperplasia and hypertrophy of the sweat glands and hyperplasia of the hair follicles.

Deviation from the above classic description of the clinical features is not uncommon. In a given case only a few or all of the portions of the soft parts and the skeleton may be involved and accordingly three clinical forms of the disease have been described by Touraine *et al* (*loc. cit.*) : (1) "Complete form" with both pachydermia and pachyperiostosis. (2) "Incomplete form" withou involvement of the scalp. (3) "Forme fruste" in which clubbing is present in combination with thickening of the skin of the face and/or scalp, while pachyperiostosis i either minimal or absent at the time of presentation.

CASE REPORT

M.B., Hindu, male, aged 24 years was admitted t Calcutta National Medical College and Hospital in 1972 The presenting complaints were profuse sweating of hand and feet and painless enlargement of the distal part o upper and lower extremities.

The excessive sweating started at about 15 years of ag and this had no relation with the season and mental state He noticed swelling around both the ankles at about 1 years of age. Since then the swelling went on progressively but slowly, increasing in degree as well as in exten involving the lower end of both the legs, feet, hands an lower end of both the forearms in that order during th subsequent six years. Enlargement of the terminal phalange of the fingers and toes started also with the swelling of th legs. There was no pain accompanying the swelling of th extremities. Narrowing of the palpebral fissure, excessiv greasiness of the face and slight deepening of the voic were also complained of. There was no symptom sugge

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ive of either pulmonary or cardiac disorder. No one in his family is suffering from any of the three forms of pachydermoperiostosis.

Physical examination—Scalp—There was no thickening of the scalp.

Face—The skin of the forehead was thickened and the transverse folds were prominent with deep furrows in between giving the facial appearance of "worried-look". The upper eyelids were thickened with narrowing of the palpebral fissure simulating partial ptosis (Fig. 1). The skin of the face was thickened and greasy.

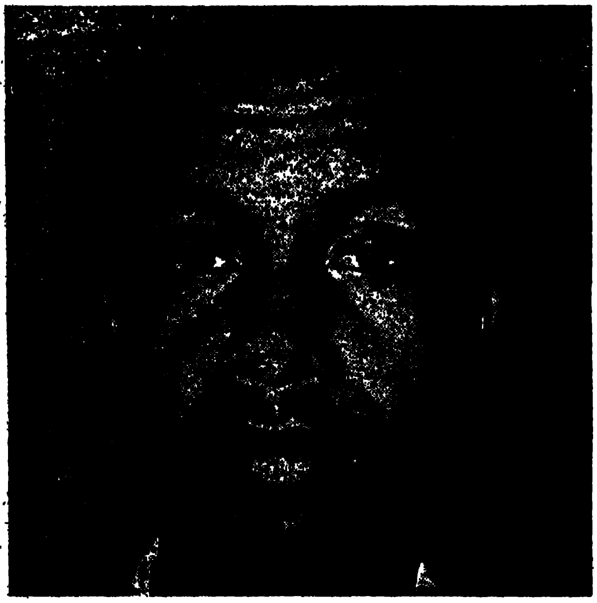

FIG. 1—SHOWING PROMINENT TRANSVERSE FOLDS ON FOREHEAD GIVING THE PATIENT "WORRIED-LOOK" AND THICKENED UPPER EYE-LIDS

Extremities—Marked clubbing was present in all the fingers and toes and the nail plates looked like watch-glass. The hands were enlarged due to marked thickening of the soft tissue and appeared spade-shaped. The lower one-third of the forearms and legs (Fig. 2), were broadened due to thickening of the skin, subcutaneous tissue and the corresponding bones. The feet were also enlarged. Both the hands and feet were excessively moist.

No abnormality could be detected in any system.

Investigations—Routine examination of blood, urine and stool and biochemical examination of blood for sugar, calcium, inorganic phosphorus and alkaline phosphatase level did not show any abnormality. Serological tests for syphilis were negative.

X-ray of the skull and chest—normal. X-ray of the long bones (radius, ulna, tibia, fibula, metacarpals, metatarsals and phalanges) shows subperiosteal new bone formation with irregular margin and increased thickening of the cortex of some of the bones (Figs. 3 and 4).

Histological examination of : (i) bone taken from the lower end of the left radius shows subperiosteal new bone formation (Fig. 5). (ii) Skin and subcutaneous tissue show thickening of the corium with hyperplasia of the sweat glands.

DISCUSSION

The clinical features, the radiological appearances and the biopsy findings present in our case are all suggestive of hypertrophic osteoarthropathy. This disease may be confused with syphilitic osteitis, acromegaly, Paget's disease and leprosy. The possibility of these disease is excluded because in none of them are present the characteristic soft tissue and bony changes of the type shown by the present case.

FIG. 2—SHOWING THE SWELLING OF THE LOWER THIRD OF BOTH THE LEGS, ENLARGEMENT OF THE FEET AND CLUBBING OF THE TOES

FIG. 3—SHOWING PERIOSTEAL OSSIFICATION AND THICKENING OF CORTEX OF TIBIA AND FIBULA OF BOTH SIDES

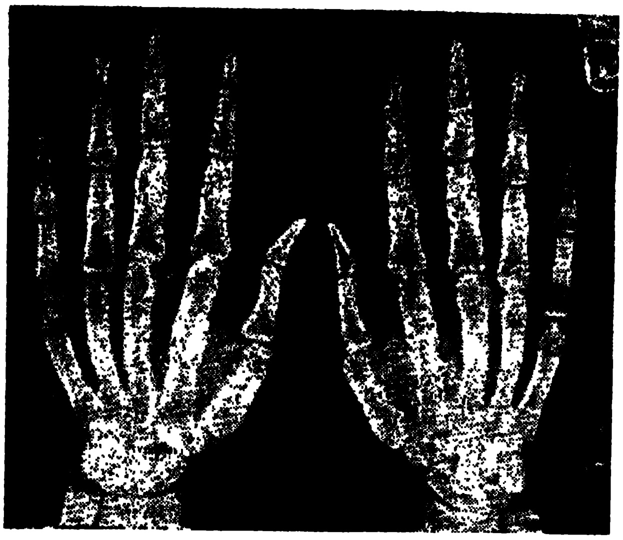

FIG. 4—SHOWING PERIOSTEAL OSSIFICATION AND CORTICAL THICKENING OF THE METACARPALS AND PHALANGES

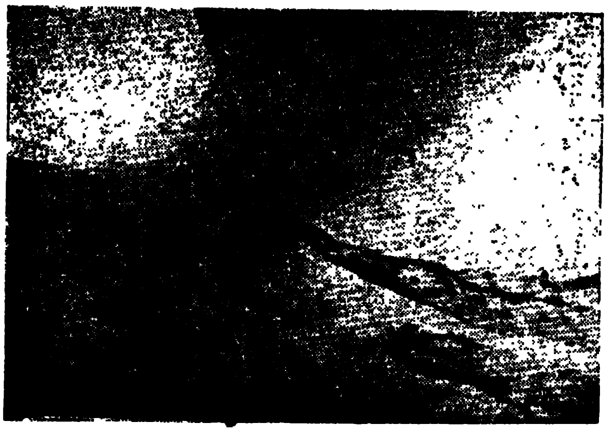

FIG. 5—SHOWING LAYER-WISE FORMATION OF NEW BONE BENEATH THE PERIOSTEUM AND INNERMOST LAYER MERGED WITH THE COMPACT BONE OF THE CORTEX

Hypertrophic osteoarthropathy are of two types—primary or idiopathic and secondary or pulmonary. It was once believed that the changes in the scalp and face are specific of primary form. But many authors (Fried, 1943; Castex *et al.*, 1950; Semple and McCluskie, 1955; Hammarsten and O'Leary, 1957) have reported occurrence of similar type of change in the pulmonary form. Naturally the diagnosis of the primary form is made by excluding the possibility of the secondary form. We have failed to detect, either clinically or by investigation, any cause of the hypertrophic osteoarthropathy in our case. The present case is, therefore, an example of primary or idiopathic form.

Since there is no change in the scalp this case represents the "incomplete form" of the disease.

Two rare features of the disease are present in our case—(1) marked thickening of the cortex of the lower ends of the long bones of the forearms and legs and (2) hypertrophy of the palpebral fissure.

The pathogenesis of idiopathic hypertrophic osteoarthropathy is not known. It is more or less firmly established that in pulmonary form a reflex mediated throu the pulmonary vagus nerve increase the peripheral blo flow which is responsible for the soft tissue and perios changes. From the similarity in features between the t forms one is tempted to draw the conclusion that a identical mechanism also operates in the primary for But this is yet to be proved.

SUMMARY

A case of idiopathic form of hypertrophic oste arthropathy is described.

ACKNOWLEDGMENT

We wish to express our thanks to the Superintenden of Chittaranjan Hospital, Calcutta for allowing us t publish this case and to Prof. A. B. Mukerjee, Head of th Department of Medicine, for his guidance and suggestion

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2

Fracture Neck of Talus in Children

K. M. PATHI*

Reports of fracture talus in children appear sporadically in literature. So far, not more than 28 cases could be found reported in world literature, of which the number of fracture neck is not more than fourteen. "This is a very, very unusual injury due to great elasticity of bone in children" (Spake, 1958). In view of the extreme rarity of this lesion, it was thought worthwhile to report this case.

CASE REPORT

On 5-5-1972, a boy (A.C.) aged 9 years was admitted to Radcliffe Infirmary, Oxford with a history of a road accident, the right foot being caught between the bumper of a car and an electric pillar. On examination, two hours

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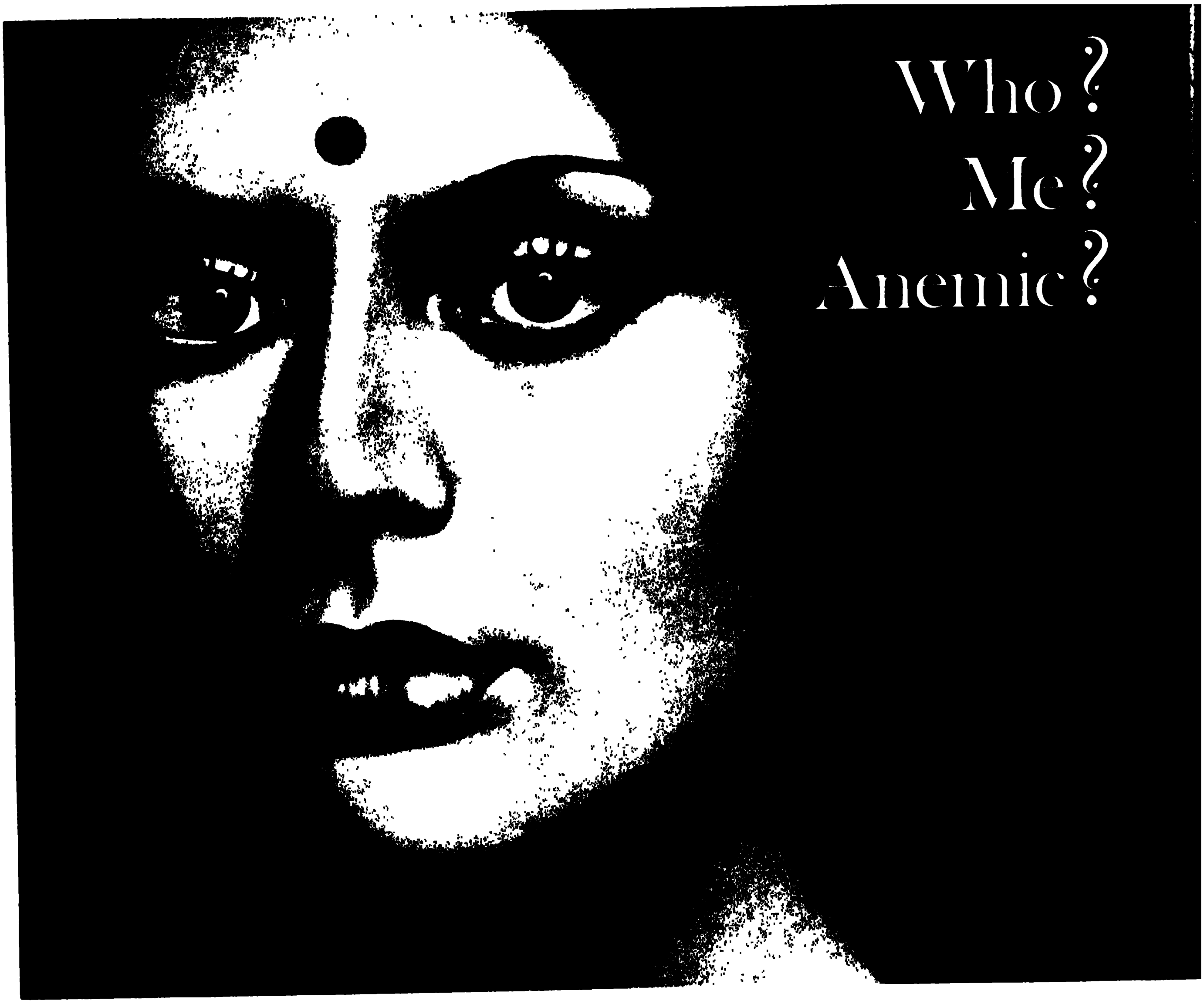
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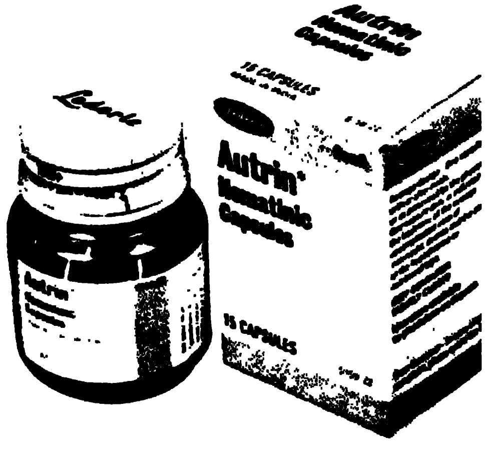

penicillin, streptomycin, mephenesin, chlorpromazine and paraldehyde and triclofos syrup by mouth. With this treatment the patient had no convulsion and reflex muscle spasm from 2nd and 6th day of hospitalisation respectively. From 6th day she was treated with chlorpromazine and meprobamate orally. From 14th day she had no muscular rigidity except that of spinal muscles and she was treated with aspirin. From 7th day onwards the patient complained of pain over mid and lower thoracic vertebrae. Physical examination revealed mild kyphosis and rigidity of spinal musculature which persisted up to 26th day, though no muscular rigidity could be detected in other muscles of the body from 14th day. Roentenogenographic examination of thoracic spine done on 10th day of hospitalisation revealed anterior compression of vertebrae of D_5 to D_9 (Figs. 1 and 2). The lower lumbar vertebrae and both hip joints were within normal limits. The pain over mid and lower thoracic regions of spine and mild kyphosis persisted even on 27th day but spinal muscular rigidity could not be observed from 26th day and the patient was discharged on 27th day with necessary directions and advice to come for regular follow-up.

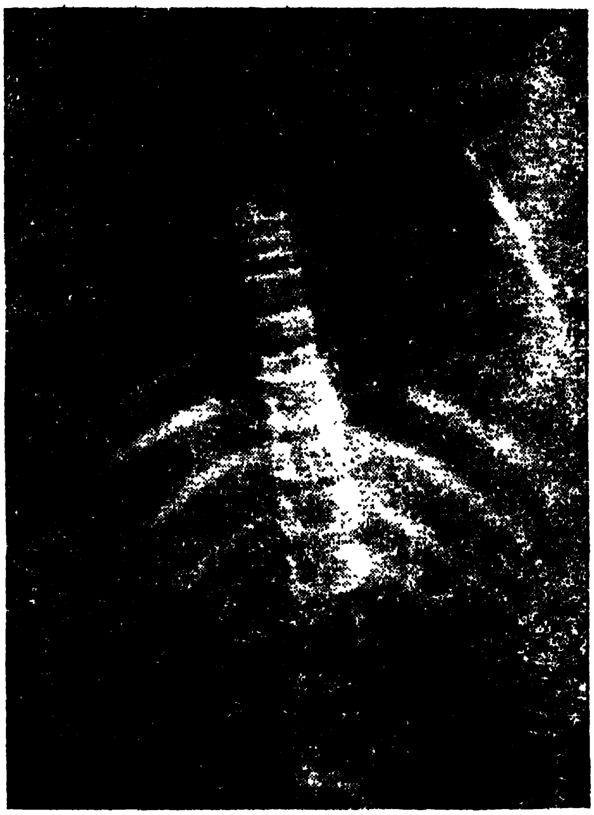

FIG. 1

DISCUSSION

A number of theories, toxic, vascular and mechanical have been put forward to explain the occurrence of compression vertebral fractures in tetanus. The most striking fact about them is their localisation in the midthoracic region. Similar lesions have been described after various forms of shock therapy (Epstein, 1955). Mechanical factors are therefore more likely to be responsible although a vascular element such as destruction of the spongiosa due to haemorrhage (Caffe, 1950) cannot be excluded. Roberg (1937) is of opinion that extensor muscles are weakest in the upper thoracic region, the full force of flexion being concentrated there; repeated compressive blows produce collapse, although any one blow on its own might be insufficient to do so. Dietrich *et al.* (1940) hold the view that the compression fracture of thoracic vertebrae results from occurrence of hyperextension of the lumbar and cervical regions and marked flexion of the thoracic spines due to simultaneous contraction of flexors and extensors of spine giving rise to longitudinal compression of the spine as a whole. The present case had compression fracture of D_5 to D_9 vertebrae and the compression of all cases of Jaffari's (1964) was in the region of D_5 to D_{11} vertebrae. Cervical and lumbar regions of spine due to their mobility can assume any position imposed on them by contracting muscles and moreover both are supported during hyperextension by neural arches (Davis and Rowland, 1965) hence they can escape the trauma of muscle spasm or convulsion. Whereas the thoracic spines specially from 1 to 9 being rigid do not possess the same articular mobility and moreover they do not get the support of neural arches during the forcible flexion of the thoracic curve (Davis and Rowland, *loc. cit.*) hence they are liable to undergo compression and fracture from spasms and contractions of the spinal muscles. Whatever the precise mechanism, it is clear that spasms in particular, but probably rigidity as well to a lesser extent flex the thoracic spine about a fulcrum situated in the region of the posterior part of the fifth thoracic vertebrae or the neural arch and compresses the anterior part of the fifth and adjacent thoracic vertebrae. The purely mechanical factors of muscular contraction, spasm and convulsion and the state of tonic contraction (Veronesi, 1956) were responsible for occurrence of compression fracture in the present case. The fall of the article weighing about 1 kg.

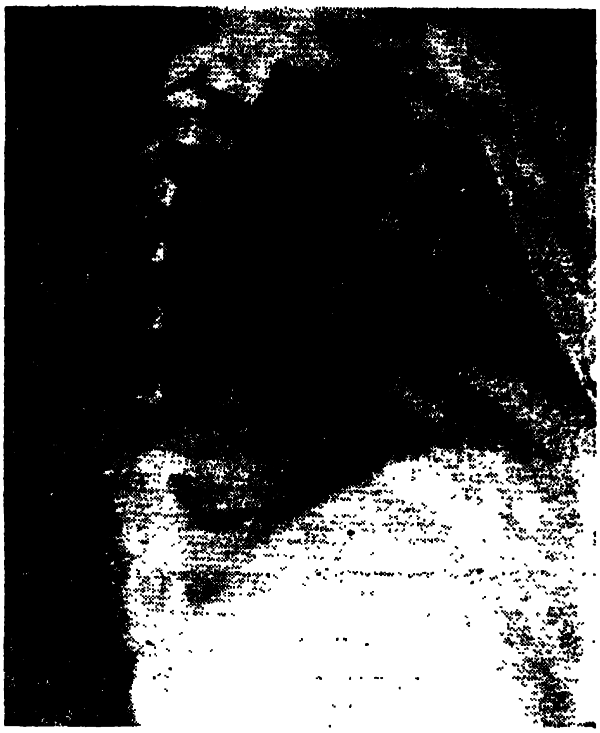

FIG. 2

over the back of the patient after onset of clinical features of tetanus probably had no relation with the occurrence of vertebral compression fracture as pain over the mid and lower portion of the thoracic spine and kyphosis developed from 11th day following onset of clinical features of tetanus and not immediately following the trauma.

Vertebral compression following tetanus occur irrespective of severity or mildness of tetanus according to the grading of Patel and Joag (1959) though the extent of compression is greater in the severe type than in the mild type of cases of tetanus. The present case belonged to grade IV according to the grading of Patel and Joag (*loc. cit.*). Amongst the cases with vertebral compression (Jaffari, *loc. cit.*) the muscular rigidity persisted for a minimum period of 18 days to a maximum of 32 days while the present case developed vertebral compression after suffering from muscular rigidity for a period of 10 days. Variable degree of vertebral compression is observed. In a few cases even compression is seen but in majority the lesions are of wedged compression. The vertical length of the vertebrae is reduced to one quarter, one third or even half of the size of the length of the vertebrae (Jaffari, *loc. cit.*), intervertebral discs or ligaments are not injured and fracture lines are rare (Jaffari, *loc. cit.*). The vertical length of D_8 to D_9 vertebrae of the present case was reduced to one third to half of their size. It seems certain that better control of rigidity and spasm and early institution of adequate therapy will diminish the frequency of occurrence of compression fracture of vertebrae. The present case did not develop any neurological sequalae but mild kyphosis persisted. These vertebral compression fractures usually heal without deformity, although sometimes kyphosis results and do not affect the prognosis (Quinlan, 1954).

SUMMARY

Compression fracture of D_8 to D_9 vertebrae in a 6-year-old female child surviving from tetanus treated with anticonvulsant, sedative and muscle relaxing drugs has been described. The mechanism of compression fracture in tetanus has been discussed.

ACKNOWLEDGMENT

I am grateful to Dr. S. N. Sengupta, Professor of Medicine, B. S. Medical College Hospitals, Bankura for his valuable suggestion and guidance in preparation of this article and Dr. K. P. Sengupta, Principal cum-Superintendent, B. S. Medical College and Hospitals, Bankura for allowing me to publish this case report.

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Maffucci's Syndrome

ABBAS ALI KHAN*,
(MRS.) ANSAR A. KHAN**

Angelo Maffucci (1881, quoted by Carleton *et al.*, 1942) noted the association of enchondromatosis with haemangiomatosis. Kast and Von-Recklinghausen (1889, quoted by Carleton *et al.*, *loc. cit.*) gave a detailed description of a case and designated it as "Maffucci's syndrome." Later, more cases were added to the literature (Carleton *et al.*, *loc. cit.;* Krause, 1944; Umansky, 1946, quoted by Strang and Rannie, 1950; Strang and Rannie, 1950; Bean, 1955; Cameron and McMillan, 1956; Cameron, 1957; Bean, 1958; Andren *et al.*, 1963; Bahk, 1964; Ikramul-Haq *et al.*, 1965; Elmore and Cantrell, 1966). In addition to these 8 cases have been reported from this country (Vyaghreswarudu, 1958; Indra *et al.*, 1963; Chandra and Xavier, 1967). We are reporting the clinical, radiological and histological picture of an advanced case of this syndrome.

CASE REPORT

S.K.A.K.Z., a student of this university, born on 13th September, 1940, was a full term normal delivery. An outward bowing of the right leg was noticed soon after birth. Milestones of the development were normal. There was nothing significant in the family history.

In September 1945, he developed a small nodule on the dorsum of the left foot, subsequently multiple swellings appeared on the dorsum of the left hand, lower and upper end of left forearm. A few months later similar swellings were noted in the right hand and elsewhere in the body. In 1946 he sustained a compound fracture of the left elbow, following which he developed stiffness of elbow joint. Later a limp was noticed and the left lower limb was found to be shortened. In September 1950, he was x-rayed and a biopsy was taken from the swelling of the right little finger and was diagnosed as a case of multiple enchondromatosis. After the biopsy the swelling of the little finger increased rapidly. He sustained multiple fractures of the left femur, tibia and humerus following trivial injuries between 1952-58. In 1958 multiple bluish swellings appeared in the left leg, foot and later in the gum. In February 1967, he slipped and fell down sustaining injuries to the left arm and thigh for which he was admitted to the J. N. Medical College Hospital, A.M.U., Aligarh.

On examination—He was found to be of average height, built and intelligence. The left side of the body was predominantly affected, the left upper and lower limbs were shorter than the right. Both hands showed multiple bony swellings of varying sizes. There was manus-varus deformity and the movements of the left wrist were restricted. Ragged scar was present in the region of the left elbow and the head of the radius was very much prominent. The movements of the elbow were markedly limited. There was a fracture in the lower third of the humerus. Bony swellings were present in the right humerus in its middle and the left scapula at its medial border, 3 cm. and 5 cm. in diameter respectively. The left foot was

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Jwaharlal Nehru Medical College, Aligarh Muslim University, Aligarh

* M.S. (Orthopaedic Surgery), Reader in Orthopaedic Surgery

** M.D. (Pathology), Reader in Pathology highly arched and had multiple bony swellings on its dorsum. The movements of the ankle joint were limited. The right leg showed bowing towards the outer side. There was a bony swelling at the upper end of the left fibula, measuring 7.5 cm in diameter. Movements of the left knee were restricted. The lower end of the left femur was broadened and there was a fracture in its lower fourth. Multiple haemangiomata involving the skin, mucous membrane and the subcutaneous tissue were present. A significant one was in the gum, extending on to the upper lip above the left lateral incisor.

Investigations—X-ray revealed multiple enchondromatosis in the bones of both the hands (Fig. 1) and feet. Left humerus showed cystic areas with fracture in the lower third of its shaft. Similar cystic areas were also seen in the left radius and ulna. There was a fracture in the lower fourth of the shaft of the femur, where the bone was expanded. Ossified enchondromata were present in the left fibula (Fig. 2), right humerus and left scapula.

FIG. 1—SHOWING MULTIPLE ENCHONDROMATA IN THE BONES OF BOTH THE HANDS

Surgery—Open reduction and internal fixation with Rush pin and intramedullary nail was carried out for the fractures of the humerus and femur. The bony swellings of the right little finger was excised.

Biopsy from the fracture sites and the excised bony growth, revealed multiple enchondromatosis (Fig. 3, H. & E. × 280). Histological examination of the soft tissue swelling from the left leg showed the cavernous haemangioma (Fig. 4, H. & E. × 280).

DISCUSSION

Maffucci's syndrome is a congenital mesodermal dysplasia (Carleton *et al., loc. cit.*). The patients are normal at birth (Elmore and Cantrell, *loc. cit.*). Our case had lateral bowing of the leg, noticed soon after birth, while the earliest skeletal changes observed (Elmore and Cantrell, *loc. cit.*) were at the age of 3 weeks.

The swelling first appears in the hand or foot any time before puberty, subsequently similar swellings appear in one limb, both limbs, one or both sides of the body and occasionally in the skull, vertebrae, ribs, scapulae, pelvis and jaw. In bilateral cases usually one side is predominantly involved. With the cessation of growth the size of these tumours remain stationary but repeated trauma (Carleton *et al., loc. cit.*) causes enhanced growth of the swellings. In the present case, the swelling of the little finger increased rapidly following the surgical biopsy. Repeated fractures are common after trivial injuries (Kuzma and King, 1948). When skeletal changes are severe, spontaneous fractures occur in these patients (Marberg *et al.*, 1958). The incidence of fractures is greater in younger patients but may occur at any age. In our case repeated fractures occurred between the ages of 12-18 years, following trivial injuries. Nine years later he sustained the fracture of the shaft of the left humerus and femur in the same way.

The disturbance of growth is probably the chief factor in the production of deformities (Strang and Rannie, *loc. cit.*), though repeated fractures seem to play some part. Stunted growth as a whole depends upon the extent of

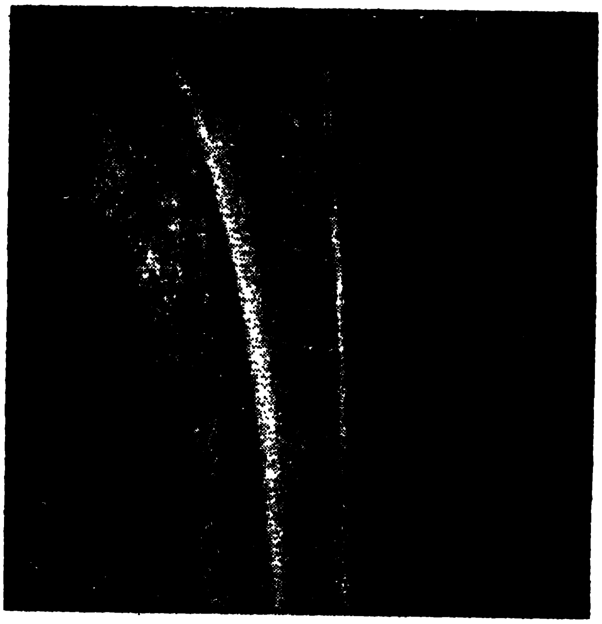

FIG. 2—SHOWING OSSIFIED ENCHONDROMATA AT THE UPPER END OF THE LEFT FIBULA

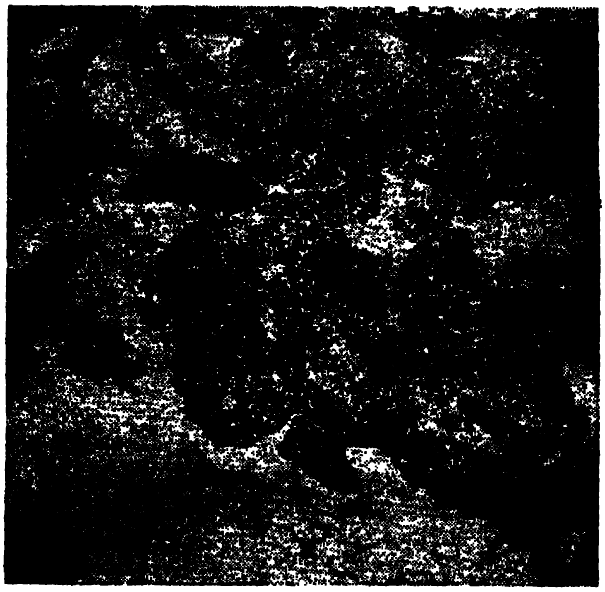

FIG. 3—SHOWING THE HISTOLOGICAL SECTION FROM THE BONE CYST. THERE IS PARTIAL REPLACEMENT OF BONE MARROW BY THE LOBULES OF CELLULAR DISORGANISED HYALINE CARTILAGE

disturbed growth of the lower limb and/or of the trunk, though the later is rarely affected.

Pain in the swellings is not the usual complaint, but when it becomes a prominent feature, malignant change should be suspected.

Haemangiomata may appear any time in the course of the disease. Its late appearance produces difficulty in the diagnosis, as it happened in our case. These haemangiomata involve the skin, mucous membrane, subcutaneous tissue and rarely the muscles (Cameron and McMillan, *loc. cit.*), and are situated in the affected limb or elsewhere in the body. They may occur at the site of the bony lesion, producing erosion of the underlying bone (Bahk, *loc. cit.*). The assumption that the skeletal changes are caused by intraosseous haemangiomata (Andren *et al.*, *loc. cit.*) has not been proved by any other worker.

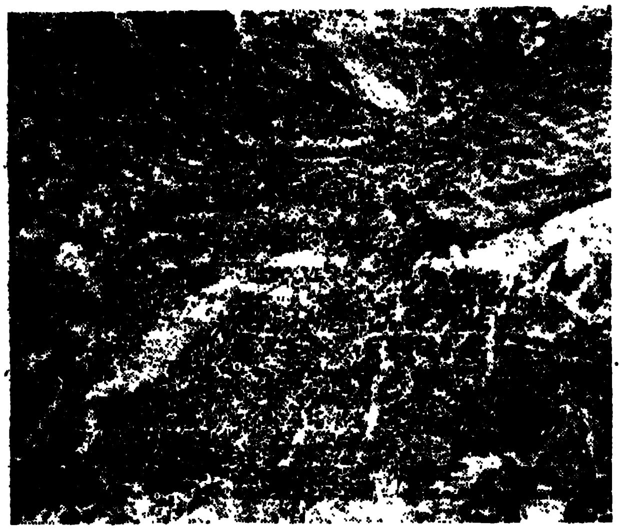

FIG. 4—SHOWING FIBROCOLLAGENOUS TISSUE, CONTAINING INTERCOMMUNICATING LARGE VASCULAR SPACE LINED BY SINGLE LAYER OF ENDOTHELIUM AND FILLED WITH R.B.C.

Patients are of normal intelligence, and the disease does not run in families. The incidence is almost equal in both the sexes.

The affected bones show cystic areas, as seen in the left humerus, radius and ulna, or broadening of the metaphysis, as seen in the lower end of the left femur. Occasionally excrescences, simulating exostosis are present as observed in the upper end of the fibula (Fig. 2) right humerus and left scapula.

Grossly the affected bones are shortened and bowed, have a large number of cysts, filled with greyish white material. Microscopically the cellular cartilage is arranged in lobules, separated by septae. The cartilage cells are of uniform size, usually containing single nucleus (Fig. 3).

Lipomatous change in the muscle (Cameron and McMillan, *loc. cit.*), and increase in the urinary amino acids (Ikramul-Haq *et al.*, *loc. cit.*), has not been reported by any other worker. Study by Sr 85, did not demonstrate any change in the total body calcium kinetics (Andren *et al.*, *loc. cit.*). Angiogram and venogram did not show any relationship between the vascular and osseous abnormalities (Bahk, *loc. cit.*). Chromosomal analysis revealed a normal karyotype (Elmore and Cantrell, *loc. cit.*). Sarcomatous change has been reported in these tumours (Rabinovich, 1965, cited by Elmore and Cantrell. *loc. cit.*).

Surgery may be indicated for correcting the deformities. These patients should be cautioned regarding the occurrence of pathological fractures. Once it occurs proper care is to be taken for perfect reduction. In our patient open reduction and internal fixation was done to minimise the shortening and the deformities. The delayed and nonunion, as reported by others was not seen in our patient, as the fractures united within normal period of time.

SUMMARY

A case of Maffucci's syndrome in a 27-year-old male has been described, in whom the skeletal abnormalities were noted soon after birth but the haemangiomata appeared at the age of 18 years.

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5

An Atypical Case of Cranio-metaphyseal Dysplasia

(Pyle's Disease)

K. PANDA *, A. DEVI **, P. T. RAO***

Metaphyseal dysplasia (Pyle's disease) is an extremely rare bone dystrophy characterised by a smooth expansion at the ends of the long bones. Smith and Jones (1910) were the first to describe these changes in human remains. But the credit goes to Edwin Pyle (1931) who gave a clear clinical and radiological report of this disease. His patient, a tall healthy male child with a large head, presented with knock knees.

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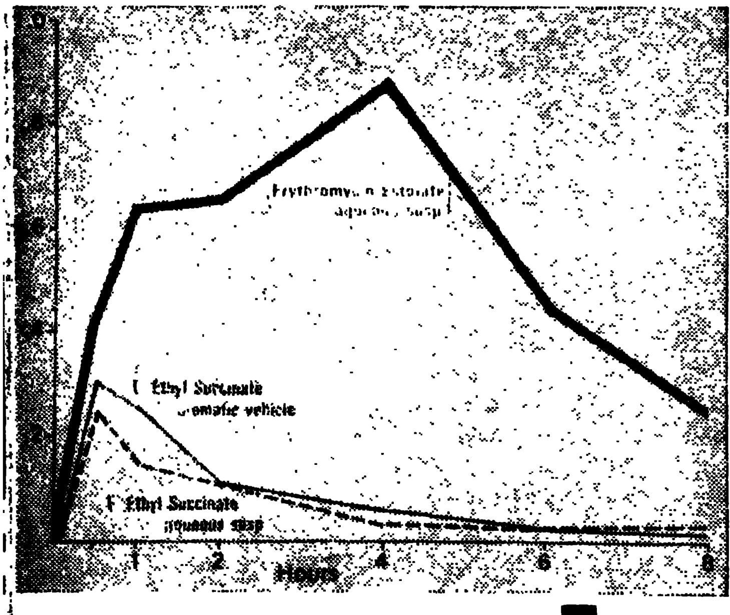

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Comparison of Blood Levels

- Average peak serum concentrations with the Erythromycin estolate were three times higher than the average peak of the ethyl succinate ester.
- Therapeutic concentrations of the Erythromycin estolate were maintained for a longer period than the erythromycin ethyl succinate. At eight hours, the blood level of the Erythromycin estolate was still five times the concentration of erythromycin ethyl succinate found at four hours.

Clinical Medicine, Jan., [illegible]

SUSPENSION:
32 ml. & 60 ml. bottles, each 5 ml. (teaspoonful) containing 100 mg. of Erythromycin as Erythromycin Estolate U S.P.

TABLETS:
Strip of 10 tablets, each tablet of 100 mg. and 0.25 Gm. of Erythromycin as Erythromycin Estolate U.S P.

THEMIS PHARMACEUTICALS
38, Suren Road, Bombay-69 AS.

— ADVANCE

Six years later, Bakwin and Kride (1937) reported further on this case and described similar changes in the child's younger sister. They introduced the title "familial metaphyseal dysplasia" and considered the entity as a congenital and familial bone dystrophy. Since then, many cases reported by different authors (Halliday, 1949; Hermel *et al.*, 1953; Komins, 1954; Jackson *et al.*, 1954; Mori and Holt, 1956; Schwartz, 1960; Gorlin and Walker, 1966; Satyadas and Nair, 1969; Cohen, 1969; Small and Wallis, 1970). Following Schwartz's (*loc. cit.*) review on 23 cases in 1960, this entity is usually called as "craniometaphyseal dysplasia" due to its common association with skull abnormalities. He advised to look for cranial changes in all these cases.

Further Gorlin and Cohen (*loc. cit.*) added a syndrome "frontometaphyseal dysplasia" due to pronounced supra-orbital bulge along with Pyle's disease. Though the disease entity is well characterised, yet its aetiopathogenesis, geneticity and peculiar presentation are still not understood. So we thought of reporting this case which may be an addition to the literature.

CASE REPORT

A Hindu boy (B.B.P.), 19 years, was admitted to orthopaedic ward on 8-9-1972. His main complaints were: (a) Irregular growth of left index and middle fingers and of right index finger and thumb since birth and (b) limping. He had also a swelling over the right eyebrow for last five years (Fig. 1).

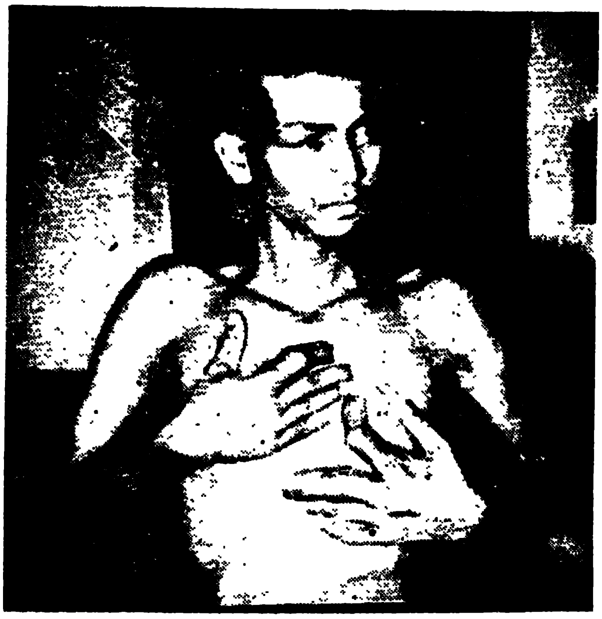

FIG. 1—SHOWING THE PATIENT IN SITTING POSITION WITH A SWELLING ROUND ABOUT THE RIGHT EYE, IRREGULAR FINGERS AND LONG NECK

The parents noticed nodularity of those fingers since birth. But gradually these were increasing in size and number making the phalanges wider and longer. The limping was well marked when the child started running. The growth over the right eyebrow and hair margin was seen only five years back and was gradually increasing in size.

None of the family members, on paternal or maternal side, suffered from any type of bone disorder. He was the only sibling in the family.

Physical examination—On examination, he was a boy of average build with long neck and relatively long limbs. His height was 165 cm. and weight 42 kg. There was mild anaemia with no jaundice, cyanosis, neck vein engorgement or glandular enlargement. The thyroid was not enlarged. He was normotensive with good peripheral pulsations. The apical impulse was felt over the epigastrium below the left costo-xiphoid angle. The chest expansion was limited to 2 cm. and there was marked emphysema. The abdomen was soft, scaphoid with no enlargement of liver or spleen. The genitalia were well developed with pubic hairs and descended testis. There was varicosity of veins of the left lower limb.

Fingers—The phalanges were thickened and elongated with irregular nodules near about joints. It was more marked over the right index, middle and over the left index and thumb as mentioned before. Other fingers showed mild nodularity only. Skull—There was an osteoma over right supra-orbital bulge extending up to the hair margin. Chest—The clavicles and ribs were prominent with marked widening of left 7th, 9th and of right 4th and 8th ribs. Upper limbs—The bony ends near about elbows and wrists were prominent. Lower limbs—The left tibia was longer by 4 cm. and left calcaneum was regularly enlarged. There was no deformity of toes. Spine—Cervical and thoracolumbar kyphoscoliosis was marked with slight restriction of movements.

Investigations—Routine examination of blood, stool and urine showed no abnormality. His bleeding time, clotting time and ESR were within normal range.

The radiological studies showed (a) osteoma with poor pneumatisation of skull, (b) irregular expanded giant phalanges (Fig. 2), (c) big vertebrae (Fig. 3), (d) tubular heart with emphysematous lungs and (e) ape-like pelvis. There was marked rounding of metaphyseal ends of long bones (Fig. 4) of upper extremities together with a larger calcaneus and longer tibia on left side (Fig. 5).

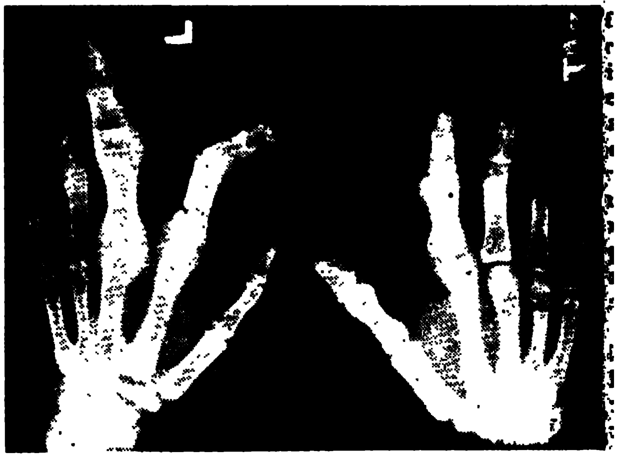

FIG. 2—SHOWING IRREGULAR GROWTH OF PHALANGES BOTH IN WIDTH AND LENGTH

The glucose tolerance test showed normal curve with fasting blood sugar—80 mg. per cent, half an hour following 100 g. of glucose drink—115 mg. per cent, one hour after—130 mg. per cent, one and half hour sample 105 mg per cent, and the last reading after 2 hours was 95 mg. per cent only. The serum calcium was 10.2 mg. per cent serum phosphorus—4.2 mg. per cent, alkaline phosphatase—15 KA units and creatinine—0.8 mg. per cent.

The electrocardiographic studies showed right ventricular strain due to emphysema. The pulmonary function tests showed low tidal volume (350 ml.) and vital capacity (1.2 litres).

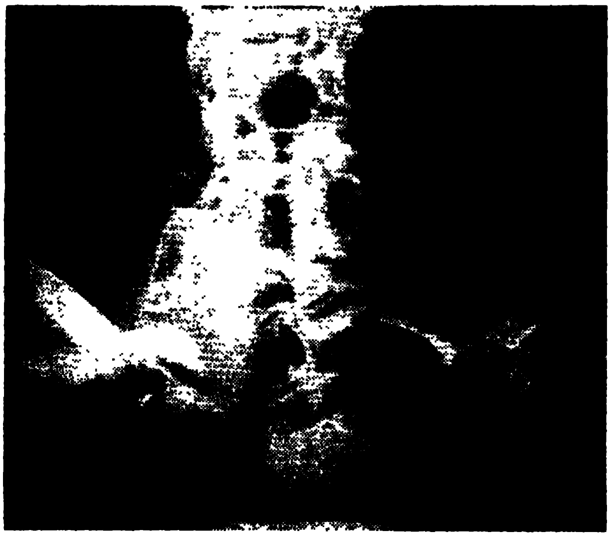

Fig. 3—Showing Wide Expansion of Cervical Vertebrae and Scoliosis (A. P. View)

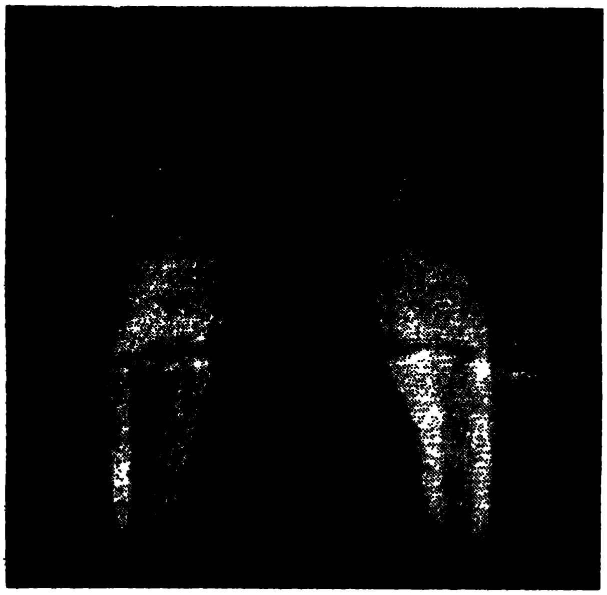

Fig. 4—Showing Typical "Wine Bottle Appearance" due to Expansion of Lower Ends of Both Humerus, the Upper Ends of other Bones are also Rounded (A. P. View)

The histopathological studies showed normal bony pattern with collagen tissue and haversian system. No pathological diagnosis was possible from it.

The growth hormone assay was within normal range with a fasting serum level of 5.7 ng./ml.

Discussion

Anthropometric measurement results showed unusual length of the limbs with normal sitting height (Hermel *et al., loc. cit.*). But our case differs from other workers due to unequal asymmetrical development of different bones. Though there are long limbs yet the left tibia and calcaneus were unusually longer and bigger. The affection of cervical vertebrae was more pronounced and the vertebral column was also quite long.

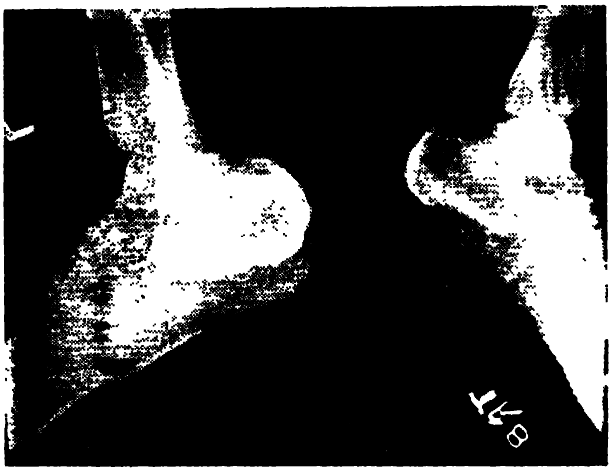

Fig. 5—Showing the Left Calcaneus Bigger and the Lower Ends of Tibia and Fibula are Rounded

The supra-orbital bulge and cranial changes were minimal in our case. The development of ivory osteoma is very atypical and not yet described. It might be an associated condition or else the frontal torus might have presented in this way. There was no faulty dentition nor cranial nerve involvement as described by Schwarz (*loc. cit.*). Pneumatisation of cranial bones was quite deficient.

There may be various degrees of osteomalacia characterised by bowing of long bones in this disease. Pathological fractures have also been observed occasionally. There was only bowing of fibulae in our case. The cardiopulmonary changes are rarely described. The emphysema in our case was there from birth but not secondary to any other pathology.

The radiological features are very characteristic with expansion of metaphyseal ends, increased length of long bones having thin cortex and numerous transverse lines. The cause should not be thought as expansion of metaphysis but failure of tubular moulding. It is stated that a failure of tubulation is due to decreased activity of the periosteal osteoclasts in the region of the metaphysis.

The condition is apparently inherited as an autosomal dominant trait and good examples have been described by many workers. But we are not in a stage to comment on our case as he is the only offspring in the family.

Summary

A case of Pyle's disease is reported with detailed clinical, radiological, biochemical and pathological studies.

Its atypical character with asymmetric growth of different bones, ivory osteoma over skull and associated emphysema is discussed.

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6

Unilateral Hypoplastic Breast

HEM LATA GUPTA *, ARATI MITRA **

Unilateral hypoplasia of the female breast is a term used to describe a condition in which one breast is markedly smaller. Very little appeared in the older literature regarding this condition. The early textbooks of surgery concerned themselves primarily with bilateral hyperplasia, with ptosis, and with post-surgical breast deformities. Maliniac (1959) presented a classification of asymmetries of the breast which included four categories : (1) Unilateral hypertrophy with the other side normal; (2) bilateral asymmetrical hypertrophy; (3) unilateral amastia or hypomastia, with the other side normal, and (4) hypertrophy on one side with amastia or micromastia on the other side.

Aetiologically, little is known about the cause of unilateral hypoplasia, but it appears to be a type of end-organ failure rather than a developmental abnormality. Three types of hypoplasia can be described : (1) The true congenital type (probably due to end-organ failure), (2) the post-surgical type, and (3) the so-called pseudohypoplastic breast, often characteristic of patients with a unilateral congenital or post-surgical deformity of the rib cage, or of the thoracic or cervical spine. In the last few years some papers have appeared regarding this distinctive problem of unilateral hypoplasia of the breast. We report here one such case of unilateral hypoplasia of breast.

CASE REPORT

U.K., young female, aged 19 years, noticed the asymmetry of the breasts for the first time at the age of eleven years and the left breast was smaller than the right. This disparity between the two sides increased gradually which made the patient conscious of the thing and in addition she was unable to wear the items of clothing currently in vogue and developed psychiatric problems that she would never be married because of self consciousnes and subsequent fear of sexual relations. She had he menarche at the age of 14 years; regular menstrual cycl and no history of pain in the breasts.

On examination, she was found to be of normal buil and systemic examination was normal. There was marke discrepancy in the size of her two breasts. Left breas was markedly hypoplastic, smooth in consistency an there was no palpable lump; right breast was slightly bigge than the left though otherwise normal; pectoralis majo muscles, clavicle and rib cage were normal.

DISCUSSION

Many women with aplasia, hypoplasia, asymmetry o secondary atrophy of the breasts suffer from a deep sens of inadequacy which may seriously interfere with courtship and marriage, and with their ability to enjoy many daily activities.

Psychiatric effects of unilateral hypoplasia of the breast on the patients are usually profound. In the present case she had to stop her further studies because she could not use certain dresses which were in vogue since the deformity became more obvious in those dresses and secondly, she refused to get married till the deformity was corrected. These psychiatric problems, like refusal of marriage, divorce, refusal of employment where pre-employment physical examination is required is well documented by Carso (1972) in his series of eight cases, and by Rees and Depuis (1968) in their series of four cases.

In this case there was no family history of any type of breast deformity. Carso (*loc. cit.*) also reported lack of family history in his series of cases.

The unique feature in this case was the well developed breast on the uninvolved side. Carso (*loc. cit.*) also observed the same or abnormally large breast on the uninvolved side in five of his 8 cases.

Patients with bilateral hypoplasia of the breasts often accept it as a familial characteristic, but patients with unilateral hypoplasia find it more difficult to accept their asymmetrical deformities, particularly those who have an adequately developed breast on the normal side. If their mother and sisters had normal size breasts, their feeling of inadequacy may be even greater. This feeling is undoubtedly compounded by the unusual importance placed on a normal appearing bosom both in our society and in antiquity. This patient was subjected to mammoplasty on the hypoplastic side.

SUMMARY

A case of unilateral hypoplasia of the breast with no known aetiological factor and with no familial tendency is reported. The psychological aspects are significant.

ACKNOWLEDGMENT

We are grateful to Dr. S. Acharya, Principal, Lady Hardinge Medical College and Hospital, New Delhi and Dr. S. Sachdeva, Professor of Medicine, Lady Hardinge Medical College and Hospital, New Delhi for allowing us to publish this case report.

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JOURNAL OF THE
INDIAN MEDICAL ASSOCIATION

CALCUTTA, SEPTEMBER 1, 1974

Intensive Care

The First World Congress on Intensive Care ecently held in London under the auspices of The Intensive Care Society" of Great Britain has ighlighted the needs of extra care for critically l patients admitted in hospitals to reduce mortaity rate and has successfully collected samples of materials based on observations made all over the world during the last decade or so for the furthernce of efforts to make the whole concept more practical and realistic from the human standpoint rrespective of expenses and organisational difficulies. A special issue[1] of Health and Social Service ournal/Hospital International, published on the occasion, has stressed on the planning of the proramme based on actual needs and the details of hospital patient care in its entirety'. Whether all ritically ill patients can be treated in a single inensive therapy unit or separate units for speciaised branches of medicine are to be provided in he same hospital are problems which require careul consideration in view of the capital outlay in erms of equipment and staffing.

The purpose of an intensive therapy unit is ssentially provision of continuous attention to angerously ill patients by trained doctors, nurses nd auxiliary personnel wlth the help of instruments which may be sophisticated ; drugs some of which are costly ; and laboratory facilities that may be of use at any time so that functions of vital organs like the heart, the brain, the kidneys, the lungs and others may be observed round the clock nd given timely support when emergency arises. Automatically, all categories of seriously ill patients re to be included in the programme, cardiac, eurological, renal, pulmonary or otherwise irresective of age and sex or specialities, medical or urgical. Thus, intensive therapy is at the present moment multi-disciplinary and the First World Congress rightly pointed it out by including all medical and surgical problems which have up till ow been studied and observed in medical centres n different parts of the world and have been found o deserve priority in hospital patient care.

For achieving the purpose stated above there must be certain conditions to be fulfilled. These are : (a) Assessment of the needs of intensive care facilities of a particular hospital ; (b) mode of entry into the special unit, from inside the hospital or outside ; (c) determination of its site, size and design ; (d) providing necessary equipment and ensuring desirable engineering services for the unit ; (c) organisation of staff—medical and paramedical and lastly (f) proper supervision and administration.

In this country following independence there has been a spate of construction of new hospital-complexes in keeping with the requirements of the progressively increasing population and its awareness of institutional care for diseases which are likely to be of serious portents and would need specialised investigation and care. Unfortunately, very few of the projects take into consideration the total number of 'seriously ill' cases likely to be admitted in a regional hospital, a number that may be easily assessed by studying the statistics for the past year or two. In UK, 1-2 per cent of the total "acute" patients in an average hospital has been calculated to require intensive care facility according to Chief Medical Officer of Health's annual report 1966[1]. In India percentage of such cases may be more and may vary seasonally as communicable diseases like acute infectious fevers, viral hepatitis, diarrhoeas and dysenteries are more common in this country and may give rise to problems of therapy equally as conditions more universally recognised like myocardial infarction, shock, renal failure, poisoning, respiratory emergencies, head injury and other serious accidents, postoperative complications, etc. Under existing circumstances, very few State hospitals have provisions for special care of critically ill patients and it is a common sight that all patients are kept in the same ward and emergency cases are at times even kept on the floor when existing accommodation in cots is already full.

The selection of patients for intensive therapy has to be broad-based, that is, without consideration of age, sex or specialities except for highly technical problems like neurosurgery or obstetrics, and they might get direct admission from outside or be transferred from general wards or from the operation theatre when an emergency situation arises. Their stay in the intensive care unit will also depend on the necessity for special facilities of treatment. While transfers inside the hospital may not pose a problem in our hospitals, bringing patients from outside would surely be a difficult job in view of the frequent nonavailability of even an ambulance in the big cities in emergençies and worse still are transport facilities in district towns and villages where the largest percentage of our population is concentrated. The idea of a mobile intensive care unit which caters to the needs of the seriously ill patients in all developed countries today is a dream for us and it is only a lucky few that can have the benefit of special care which is still a luxury in developing countries like India. The exhibition of a fully equipped mobile van for resuscitation in the World Congress premises and the audio-visual demonstration of the functioning of such units and in some countries of even specially designed helicopters for transporting patients from inaccessible areas only proved the wide disparity in our deficiency in rendering aid to acutely ill subjects twenty-seven years after independence.

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[1] Hitchcox, B and Lees, W.—Intensive Care, 1974, Health and Social Service Journal/Hospital International, London, p. 9.

The determination of the site, size and design of an intensive care unit has to take into consideration (i) the types and number of cases more often requiring intensive therapy in a particular hospital; (ii) the availability of specially trained personnel and equipment; (iii) the space required for each patient who should have privacy and at the same time be easily accessible with all gadgets and monitors by the doctors and nurses whenever necessary; (iv) the impact of a large number of instruments and appliances on the patients and their relatives; (v) provision for adequate ventilation in view of patients with infection or those susceptible to the same; (vi) arrangements for the proper seating of the nurse who would not only keep a watch on the patients but would also make preparations for their necessary care; (vii) accessory requisites like laboratory, stores, pantry, disposal system for linen and other dirty articles, etc., and lastly (viii) suitable areas for reception of patients and relatives, accommodation of doctors, and enforcement of precautionary measures before entering the unit. Design plans which have been found useful in various hospitals all over the world are now available and some institutions in this country have already started building up their own units and it would not be difficult to modify plans according to our own resources. The climate, as a factor, has surely to be given proper importance in the tropics and Bhatia[2] has rightly made a special reference to it in respect of a surgical centre established in Ahmedabad while taking part in the discussions in course of the World Congress.

Equipment and appliances, some of which may be quite expensive, have to be provided for an intensive therapy unit and these are to be fitted in a desirable fashion so that the same may be utilised as soon as the necessity arises without creating disturbance to the patient or his environment. Spare parts should be available along with adequate engineering services so that most of the equipment in use today, being essentially electronic, may not be out of use just because of technical defects or temporary breakdown.

From the standpoint of essential personnel for running an intensive care unit one has to duly consider both patient-nurse as well as patient-doctor relationship. Nurses and doctors must be trained specially to deal with their jobs and their number should be adequate to maintain 2 or 3 shifts round the clock. While the nursing staff has to carry out intensive nursing care in its true sense—'a detailed and enlightened care of the whole patient'[3]—as well as special observations like interpretation of ECG tracings or readings taken on a respirator and also undertake special treatment like intravenous injections, defibrillation of the heart, etc., the medical team must ensure all facilities, render proper service and educate all persons involved in the intensive care system. Thus, duties and responsibilities of nurses and doctors are to be clearly understood. While the knowledge of the diseases to be treated has to be properly grasped both by doctors and nurses, the latter must be prepared to communicate with the patients in the proper fashion and to give them the compassionate care that is needed most of all.

Finally, administration and supervision of the working of the whole unit has to be done methodically by building up a whole team starting from senior doctors with experience and ending in juniors who would carry out instructions by the bed-side. This must necessarily involve a chalk-out programme dealing with all details beginning with selection and admission of a patient to an intensive therapy unit and co-ordinating with the departments from where the patient has been transferred, if the portal of entry is the hospital itself or with the relatives, if the patient is brought from outside. The working capacity of the unit has to be understood by the physicians, surgeons and anaesthetists who are expected to serve the unit and exchange their knowledge for making the organisation foolproof. Last but not the least is the assessment of the psychological problems likely to evolve both from the patient's side as well as from that of the staff working in an intensive care unit, the atmosphere of which has been aptly described as "not unlike that of a tension-charged strategic war bunker"[4].

A. B. MUKERJEE

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[3] JONES, E. S.—Intensive Care, 1974, Health and Social Service Journal/Hospital International, London, p. 60.

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CURRENT MEDICAL LITERATURE

Learning Disabilities

HIRSCH, K. D. (*Bull N. Y. Acad. Med.*, **50**: 459, 1974) from the Department of Language Disorders, New York State Psychiatric Institute, New York, N. Y., comments :

Children who suffer from learning disabilities do not constitute a homogeneous group. Such disabilities cannot be viewed as a single clinical entity. They embrace a variety of dysfunctions, grouped together because the presenting symptom—academic failure—is their most outstanding feature. Psychological and physiological factors, the child's genetic endowment, including his vulnerability to stress, his prenatal, neonatal, and postnatal history, the emotional climate in which he is reared, and the social milieu of which he is part, all interact in complex ways. Learning requires the integration of a number of physiological and psychological processes and the acceptance of a specific set of values. It also requires of the child the ability to submit himself to the constraints and demands of the classroom.

Neurosis in children with neurogenic learning disabilities may be part of the biological dysfunction ; it may be the consequence of the dysfunction or it may have originated in conflicts unrelated to organicity but interacting with it.

Some have not established superiority of one hand over the other. Establishing a master hand is normally related to familial and maturational factors. Symptoms, of course, mean different things at different ages. At the age of 11, switching hands during writing may signal a maturational defect or some irregularity of the central nervous system. What counts is directionality. Progression from left to right is necessary for reading and writing in our culture.

Immature children do present perceptuomotor deficits but as they advance into the higher grades the importance of such deficits decreases rapidly and what counts in the long run is conceptual and linguistic competence. Thus, it is imperative to check carefully the linguistic performance of kindergarten child.

The differential diagnosis of learning disability is much more difficult in older than in younger children. "Soft neurological signs" tend to disappear in adolescence, although careful clinical investigation may reveal telltale signs of earlier instability of the central nervous system. Maturation may have modified some of the original deficiences.

The interactions among race, sex, socio-economic condition, and adequacy of teaching are extremely complex. It is often helpful to ask what a youngster would look like without the organic dysfunction ; how, given the dysfunction, he would manage if he had been embedded in a nurturing environment. It is interesting to speculate about his genetic endowment, his vulnerability to stress, his ego strength, and his drive toward growth. Such speculations may help one to look at the interaction of forces that shape the individual learner.

We now see a succession of deprived young children destined to fail at school. At the age of four they are referred to a specialist because of failure to speak. They probably have subtle neurological damage ; they are neglected, overwhelmed, and exposed to frightening situations. They lack a stable framework to which they might relate and they are expected to decode and encode in two different linguistic systems, although they cannot cope with either.

A child's learning disability may be psychogenic, neurogenic, based on developmental language disorders, or related to environmental causes. It is in no way helpful to describe the deficiencies of a child without taking into account significant compensatory and adaptational resources. Diagnostic labels are artificial at best. In reality we deal with a large variety of forces that interact in complex ways. Hence different interventional and therapeutic approaches are needed for every single child.

Health Insurance in Canada

LEE, S. S. (*New Eng. J. Med.*, **190**: 715, 1974) from the Department of Epidemiology and Health, McGill University, Faculty of Medicine, writes :

Whereas the United States has used a "beneficiary" approach in providing selected segments of the population with national health insurance, Canada has gradually increased "benefits" to all its people so that today more than 98 per cent of the population is covered by national-health-insurance programme that is broadly comprehensive and includes physician's services. The insurance reflects federal standards but is administered provincially, with both parties sharing the cost about equally.

Since fee-for-service is the principal method of payment extensive negotiations are necessary between provincial governments and medical organisations. In one province (Quebec) all physicians are unionised. Hospital utilisation rates are high and are leading to increasing provincial efforts to control costs. In spite of its problems, the Canadian system deserves study by the United States as it considers various forms of national health insurance.

Comparative Study of African and White Liveborn Infants

SINGER, B., BLAKE, L. AND WOLFSDORF, J. (*S. Afr. Med. J.*, **47**: 2399, 1973) from the Department of Paediatrics and Child Health, University of Rhodesia, from Godfrey School of Medicine, University of Rhodesia, and from the Department of Paediatrics and Child Health, University of Rhodesia, Salisbury, Rhodesia, observe :

Birthweights of 8411 liveborn infants in 3 maternity centres in Salisbury, were analysed. Two of these centres, Harari Maternity Hospital, and Edith Opperman and Mufakose Maternity Clinics (the latter 2 considered as a single urban maternity unit) served African maternity cases. The third centre, the Lady Chancellor Maternity Home, is the only maternity centre for Whites in Salisbury. Mean birthweights for the 3 units were : 3,07 kg ; 3,19 kg ; and 3,26 kg, respectively. The differences between them are highly significant ($P < 0.01$).

The White babies were found to weigh the most, while the babies born at Harari Maternity Hospital weighed the least. The African babies born in the urban clinics were intermediate in weight. Causes for these differences are considered. Secondly, male infants, both African and White, were heavier than female infants, independent of parity.

Thirdly, the relationship of maternal height to term birthweight of infants, in primiparous African and White populations in Salisbury, was examined. The highly significant differences in weight found between the groups could not be attributed entirely to differences in maternal height.

The Seroepidemiology of Rubella

NAJERA, E., NAJERA, R. AND GALLARDO, F. P. (*Bull. W.H.O.*, **49**: 25, 1973) from the Centro Nacional de Viro-

logiary Ecologia Sanitarias, Majadahonda, Madrid, Spain, state :

Epidemiological patterns of rubella transmission were studied by performing haemagglutination-inhibition (HI) tests on 1,132 sera collected from urban and rural areas of Spain in the period 1969-71. Different epidemiological values were ascribed to 3 levels of HI titre in order to analyse current prevalence and past incidence independently. Titres below 8 were considered negative, while low titres (8-32) were taken to indicate old immunity, medium titres (64-512) to indicate well-established immunity, and high titres (≥ 1024) to indicate recent infection. The method appears to be of value for the surveillance of rubella. The findings confirmed that transmission takes place mainly children of school age and continues at a substantial level up to about 30 years of age. The pattern of transmission differed markedly between city and rural populations.

Cause of Death in Japanese Radiological Technicians, 1966 to 1972

KITABATAKE, T. AND WATANABE, T. (*Acta Medica Biol.*, **21**: 107, 1974) from the Department of Radiology, Niigata University School of Medicine, Niigata, write :

No particular increase in leukaemia was recognised, even at the present time, there are many older radiological technicians working who had received a high radiation dose in the past. Among these order workers, there is still a possibility of late occurring radiation effects, such as leukaemia. At the present we have no complete scanning system of case findings so that a mortality analysis is unsatisfactory, as is seen in this paper. A registration system of radiological workers may be of help for such analysis in the future.

From 1966 to 1972, 134 deaths were reported among Japanese radiological technicians in the Japan Radiological Technicians Association. This observed value is extremely less than the expected: this findings is probably due to an omission of case findings. Of 134, 6 skin cancer deaths and 2 aplastic anaemia deaths were found. Both of these are significantly frequent as compared with the expected number. Leukaemia was seen in 5 cases, but there is no statistically significant difference between the observed and expected values. The observed average of death is 52.7 years while the expected is 48.6 years.

Chronic Glaucoma : A Preventable Cause of Blindness

CRICK, R. P. (*Lancet*, **1**: 205, 1974) from Ophthalmic Department, King's College Hospital, Denmark Hill, London, writes :

Chronic glaucoma is an important cause of blindness in Britain and throughout the world. There is evidence that blindness from this cause could be materially reduced by the conscientious application of existing knowledge. Glaucoma requires careful, continuous, and life-long supervision with the aid of sophisticated equipment. The condition is insidious both in onset and progress, and requires active measures to improve its identification. If undiagnosed or inadequately treated, visual-field defects due to optic atrophy are progressive and irreversible. Adequate survillance of large numbers of glaucoma patients in hospital general ophthalmic clinics is not possible. Numerical recording of standardised tests and computer analysis of clinical findings have been devised at King's College Hospital, London. An improved standard of management and follow-up is being provided. The system has been designed to be suitable for expansion into a regional glaucoma service. At present research into the problems of data recording and analysis are a priority, but the computer recall of the accurate records of a very large number of patients will, if properly planned, provide facts on which to base research into all aspects of glaucoma.

Colorectal Endometriosis

PONKA, J. L., BRUSH, B. E. AND HODGKINSON, C. P. (*Dis. Colon. Rectum*, **16**: 498, 1973) from the Henry Ford Hospital, Detroit, Michigan, write :

This report concerns the experience from 17 patients with proven colorectal endometriosis. A history of sterility or decreased reproductive capacity, dysmenorrhea, menstrual irregularities and cyclic pelvic and rectal pain, and dyspareunia are common symptoms. Physical findings include fibrosis and nodularities in the *cul-de-sac*. Pain is caused by palpation incident to examination. The ovaries are apt to be enlarged, fixed and cystic. Proctoscopic examination usually reveals an intact mucosa, but stenosis and angulation are present at the level of the rectosigmoid.

Barium-enema studies are helpful in revealing a stenotic lesion with an intact mucous membrane. The stenotic area is ordinarily not completely rigid. Some flexibility is demonstrable on repeated examinations. Obstruction to the column of barium is rarely complete in endometriosis. Carcinoma is the lesion most often suspected when an endometrioma is present. Rigidity of the bowel and ulceration suggest carcinoma. Polypoid lesions, regional enteritis, secondary tumours and diverticulitis are other lesions to be considered in the differential diagnosis.

Treatment should be influenced by the age of the patient and whether future pregnancies are desired. Conservatism in so far as ovarian function is concerned is desirable in patients less than 40 years of age unless symptoms are persistent and severe. In any patient with gynaecologic disease suspected of having a colonic lesion as well, pre-operative bowel preparation for possible resection is recommended.

Colorectal endometriosis may be treated in several ways. Surgical treatment, which means conservative treatment after frozen-section tissue diagnosis, includes sigmoidal resection, right colectomy, and local excision. Biopsies should be resorted to in doubtful cases. Radical procedures, such as employed for carcinoma, may be avoided if a determined effort is made to arrive at the correct diagnosis.

There were no deaths and no serious complications in this series of cases. One patient, after a Mikulicz resection, required re-resection of a postoperative stenotic area. The results were otherwise excellent.

Gestational Period and Weight, Length, and Head Circumference in Infants

FOGH, M. (*Danish Med. Bull.*, **20** : 178, 1973) from the Department of Obstetrics, Sct. Joseph Hospital, Copenhagen, writes :

In the majority of previous publications on uterine growth, birth weight has been determined as a function of the length of the gestational period. The material of the present study is comprised 2736 infants, chosen at random, with a birth weight below 2800 g. The possible length of the gestational period for each 250-gram group has been determined. After exclusion of the growth-retarded infants (infants with a birth weight less than twice the standard deviation), a normal distribution of the length of the gestational period within a given weight group was obtained, as well as a reduction of approximate six weeks in the possible length of the gestational period.

Head circumference and length are less retarded than weight in SFD (small for date) infants. The difference is too small to permit discrimination between SFD infants and premature infants (born before 36th week). Placental weight is smaller in SFD infants than in infants having a normal weight for any given gestational period.

Infants with a birth weight of less than 2800 g, whose mothers were small and had a case history of sterility, had previously born infants with low birth weight, or had suffered from toxaemia during pregnancy, are significantly more frequently growth-retarded than actually premature (born before 36th week). In cases in which the mothers had experienced abortions previously, the child is premature rather than growth-retarded, the frequency in the former being significantly higher.

Icterus causa ignota, respiratory distress, and postnatal death occur with a significantly higher frequency in infants with a birth weight < 2500 g and born before 36th week than in infants with a birth weight ≤ 2500 born after the 36th week.

Asphyxia neonatorum occurs with the same frequency in SFDT infants and in NFDPP infants. It occurred with a significantly higher frequency in SFDT infants and NFDPP infants than in infants with a birth weight higher than 2500 g. and born after the 36th week of pregnancy.

Current Concepts in Diagnosis of Insulinoma

Alsever, R. N. and Stjernholm, M. R. (*Rocky Mountain Med. J.*, **71**: 209, 1974) from the Section of Endocrinology, Department of Medicine, University of Colorado School of Medicine and Veteran's Administration Hospital, Denver, Colorado, write :

Clinical signs of hyperepinephrinaemia (sweating, hunger, tachycardia) are frequently absent because the rate of fall in blood glucose is usually slow. This may be in part due to (1) a major effect of the insulin, being inhibition of hepatic glucose synthesis and mobilisation rather than accelerated peripheral utilisation of glucose, (2) a less rapid biologic effect of proinsulin, the major secretory product of most insulinomas, or (3) a high level of circulating glucagon, which may in some cases be another secretory product of the tomour (unpublished data).

Most insulinomas are solitary neoplasms, but it is estimated that at least ten per cent are multiple. In ten patients, seen at the University of Colorado, four had multiple tumours, suggesting that the figure may be higher than ten per cent. In as much as islet cell tumours are frequently associated with other endocrine tumours (multiple endocrine adenomatosis), it is necessary to evaluate each patient for parathyroid and pituitary tumours. Furthermore, the increasing number of reports of islet cell tumours producing other hormones in addition to insulin (e.g., ACTH, glucagon, gastrin, parathyroid hormone) dictates that appropriate investigations should be carried out to exclude ectopic hormone production.

The demonstration of fasting hypoglycaemia in the presence of an inappropriately elevated insulin concentration constitutes the major diagnostic criterion for insulinoma. In some cases, the measurement of proinsulin levels may provide a positive diagnosis when insulin levels are very low. Stimulation tests such as tolbutamide, glucagon and leucine have an unacceptably high incidence of false negative responses and should not be employed as the primary diagnostic test in the evaluation of insulinoma.

Once a diagnosis of insulinoma is established, the investigation should proceed to exclude multiple endocrine adenomatosis and ectopic hormone production by the tumour (or tumours).

Plasma Testosterone in Men with Impotence, Oligospermia, Azoospermia, and Hypogonadism

Lawrence, D. M. and Swyer, G. I. M. (*Brit. Med. J.*, **1**: 349, 1974) from the Department of Obstetrics and Gynaecology, University College Hospital Medical School, London, write :

Mean plasma testosterone levels (± S.D.), using sephadex LH-20 and competitive protein binding, were 629 ± 160 ng./ 100 ml. for a group of 27 normal adult men, 650 ± 205 ng./100 ml. for 27 impotent men with normal secondary sex characteristics, 644 ± 178 ng./100 ml. for 20 men with oligospermia, and 563 ± 125 ng./100 ml. for 16 azoospermic men. None of these values differ significantly. For 21 men with clinical evidence of hypogonadism, the mean plasma testosterone (± S.D.), at 177 ± 122 ng./100 ml. differed significantly ($P < 0.001$) from that of the normal men.

The mean testosterone binding affinities (as measured by the reciprocal of the quantity of plasma needed to bind 50 per cent of ^{3}H-testosterone tracer) were similar for normal, impotent, and oligospermic men. Though lower for azoospermic men the difference was not significant ($P < 0.1$). For 12 of the 16 hypogonadal males the testosterone binding affinity was normal, but raised binding affinities, similar to those found in normal adult females or prepubertal boys (about twice normal adult male levels), were found in four cases of delayed puberty. These findings help to explain why androgen therapy is usually useless in the treatment of impotence.

Catheter Complications in Total Parenteral Nutrition

Ryan, J. A. Jr., Abel, R. M., Abbott, W. M., Hopkins, C. C., Chesney, T. McC., Colley, R., Karen, R. N., Phillips, R. N. and Fischer, J. E. (*New Eng. J. Med.*, **290**: 757, 1974) from the Hyperalimentation Unit, General Surgical Services, Homer Wright Pathology Laboratory, and Infectious Disease Unit, Medical Services Massachusetts General Hospital and Harvard Medical School, write :

The complications related to central venous catheters for total parenteral nutrition were prospectively evaluated in 200 patients. Catheter sepsis was defined as an episode of sepsis, for which no anatomic locus could be identified, that resolved on removal of the catheter. The insertion of 355 catheters for 4492 days led to complications involving 4 per cent of the catheters and 6 per cent of the patients. Catheter sepsis was associated with 7 per cent of catheters and occurred in 11 per cent of patients. Eight cases of superior-vena-cava thrombosis and three of pulmonary embolism were found in 34 autopsied patients. Catheters used with strict aseptic technic were complicated by a sepsis rate of 3 per cent as compared to one of 20 per cent when breaks in the protocol were observed ($P = 0.01$). Thus, total parenteral nutrition can be employed with an acceptable risk, provided catheter care is according to protocol.

Streptococcal Pharyngitis

Merenstein, J. H. and Rogers, K. D. (*J. Amer. Med. Ass.*, **227**: 1278, 1974) from the Department of Community Medicine, University of Pittsburgh School of Medicine, Pa, write :

Patients acutely ill with suspected streptococcal pharyngitis were treated with penicillin immediately in a general practice office. Patients so treated showed a response 24 hours sooner than those whose treatment was delayed for results of bacterial culture. This was true of both culture-positive and culture-negative cases, although to a lesser extent in the latter. The advantage of decreased morbidity for one day, together with the identification of patients with possible false-negative throat cultures, outweighs the theoretical disadvantage of penicillin reactions with early therapy. Because upper respiratory tract infection and acute pharyngitis are the most common acute illnesses seen in a primary practice, they represent an important population for management by nurse practitioners. Clinical and bacteriological diagnosis of streptococcal pharyngitis by nurse practitioners in this study were comparable in accuracy to that of a physician.

Faecal Incontinence

ENGEL, B. T., NIKOOMANESH, P. AND SCHUSTER, M. M. (*New Eng. J. Med.*, **290**: 646, 1974) from the Gerontology Research Centre, Department of Medicine, Baltimore City Hospitals and Johns Hopkins University School of Medicine, write :

Six patients with severe faecal incontinence and manometric evidence of external-sphincter impairment were taught to produce external-sphincter contraction in synchrony with inter-sphincter relaxation. These responses were induced by rectal distension. During follow-up periods ranging from six months to five years, four of the patients remained completely continent, and the other two were definitely improved. One patient who was trained to relax her internal sphincter as well as to contract her external sphincter not only was continent but also regularly had normal bowel movements, which she had not had before. The training technique was relatively simple to apply, and learning occurred within four sessions or less. The findings highlight the importance of synchronised rectosphincteric responses in the maintenance of faecal continence, and they show that these responses can be brought under voluntary control in patients with chronic faecal incontinence, even when the incontinence is secondary to organic lesions.

Management of Spontaneous Bronchopleural Fistula in Children

TANDON, R. K. (*Indian J. Chest Dis.*, **16**: 108, 1974) from the Cardio Thoracic Surgery Department, S. N. Medical College, Agra (U.P.), India, writes :

Langston recently called attention to what be considered significant "blind-spots" in the current management of thoracic empyema in children complicated with bronchopleural fistula. These according to him were : (1) Undue persistance in closed drainage procedures and (2) overenthusiasm for decortication as a method of mechanical cleansing of the pleural cavity. Brynt mentioned about the delay in referring the case of empyema in paediatric group. They observed that bronchopleural fistula was seen now-a-days in the USA in patients with old, healed tuberculosis especially in those with previous pneumothorax who received no chemotherapy, the diagnosis was considered on the basis of an increasing but variable amount of sputum production, air in the pleural space and changing air fluid level.

Management of 30 cases of spontaneous bronchopleural fistula is discussed. Twenty-five cases developed fistula following rupture of tuberculous focus in the lung, while 5 developed following rupture of staphylococcal pneumonia of the lung. Intercostal drainage was a life-saving procudure in these acutely ill children. Morbidity was high but they responded to chemotherapy. Open drainage of the empyema cavity was done in 18 (60 per cent) cases while 10 cases (33.3 per cent) required major surgical procedures with high morbidity but small mortality. Only 2 cases ([illegible] per cent) with small bronchiolar leak responded to under-water seal drain.

Unusual Atrial Arrhythmia

BOLTON, M. R., GRAY, W., SCHWEGLER, R. AND LEWIS, H. D. (*J. Kansas Med. Soc.*, **74**: 394, 1974) from the Department of Medicine, Section of Cardiology, Kansas City V.A. Hospital, Kansas City, Missouri, write :

Clinical analysis of 47 patients with multifocal atrial tachycardia (MAT) was done. Chronic obstructive pulmonary disease was present in 29 patients and constituted the most common underlying disease. Although 41 patients were receiving digitalis at the onset of the arrhythmia, this drug alone did not appear to be a major consideration in the genesis of MAT. Alkalaemia occurred in 23 patients coincidental with the development of MAT and may be one of the most important factors in the development of MAT. The occurrence of MAT was associated with a high mortality (31 patients, 66 per cent died during the hospitalisation when MAT was first detected). The best method of therapy for this rhythm disturbance was careful management of the underlying illness. Correction of hypoxaemia, alkalaemia, and hypokalaemia would seem to be of utmost importance in therapy.

Popliteal Arterial Aneurysms

GAYLIS, H. (*S. Afr. Med. J.*, **48**: 75, 1974) from the Department of Surgery, University of the Witwatersrand and Johannesburg General Hospital, Johannesburg, writes :

Fifty-five popliteal aneurysms in 43 patients seen over a 15-year period, are presented. The commonest cause was atherosclerosis, with a male incidence of 98 per cent. Bilateral popliteal aneurysms were found in 29 per cent of this group, and extrapopliteal in 11 per cent of patients.

Sixty-seven per cent of the patients had complications when they were first seen, and the commonest complication was acute arterial occlusion caused by thrombo-embolism. The reasons for the high incidence of thrombo-embolism are discussed. Rupture was uncommon.

Small aneurysms are not immune to complications and in the absence of contraindicating factors such as short life expectancy, or poor surgical risk, all popliteal aneurysms should be considered for reconstructive vascular procedures.

Role of Glutathione to Lactate Dehydrogenase Activity in the Epidermis

OGURA, R., MARUTA, T. AND TAKASHIMA, Y. (*Kurume Med. J.*, **20**: 25, 1974) from Department of Medical Biochemistry, Kurume University School of Medicine, Kurume, Japan, write :

The alternation of lactate dehydrogenase (LDH) activity in mouse epidermis following intraperitoneal administration of 100 mg. glutathione (GSH) was observed. The intraperitoneal administration of GSH produced temporary increase in the GSH level and LDH activity in the blood. The GSH level in the epidermis increased significantly at the 2nd through 3rd hour post-administration. The LDH activity in the epidermis increased about 2-fold at the 3rd hour. The increase of LDH activity in the epidermis was not observed after administration of 10 mg. GSH.

The incorporation of ^{14}C glycine into protein of the epidermis was not accelerated following intraperitoneal administration of GSH. The possible role of GSH to LDH in the epidermis was considered to be a continuous reactivation of LDH.

Very High Measles and Rubella Virus Antibody Titres Associated With Hepatitis, Systemic Lupus Erythematosus, and Infectious Mononucleosis

Laitinin, O. and Vaheri, A. (*Lancet*, 1: 194, 1974) from the Second Department of Medicine, University Central Hospital and Department of Virology, University of Helsinki, Helsinki 29, Finland, write :

30 out of 12,269 sera which sent to a virological laboratory to be screened against antibodies to several viruses showed very high measles or rubella antibodies although there had been no recent typical rubella or measles infection. 7 patients had chronic active hepatitis, 2 had chronic hepatitis, 6 had acute hepatitis, 4 had systemic lupus erythematosus, and 4 had infectious mononucleosis. The onset of actute hepatitis was in 2 cases associated with skin rash, whereas no other patients had skin manifestations. During the onset of acute hepatitis there occurred significant rises in the measles and/or rubella virus antibody titres in 4 cases and signs of continuous inflammation were observed in 8 cases. The findings confirm other reports that patients with chronic active hepatitis and systemic lupus erythematosus have raised titres to measles and rubella antigens. Furthermore, it seems that two other diseases, acute hepatitis and infectious mononucleosis, show in some cases very high antibody titres to measles and rubella antigens. Our data suggest that atypical viral infection plays an active role in the pathogenesis of at least some of the abovementioned conditions.

Epidemic Rubella in Adolescent Boys

Landrigan, P. J., Stoffels, M. A., Anderson, E. and Witte, J. J. (*J. Amer. Med. Ass.* **227**: 1283, 1974) from the Epidemiology Programme and Immunisation Branch (Drs. Landrigan and Witte), State and Community Services Division, Centre for Disease Control, Health Services and Mental Health Administration, Public Health Service, Atlanta, and the Immunisation Project, Minnesota State Department of Health Minneapolis, state :

Between April 7 and June 10, 1972, there occurred 163 cases of rubella in Olmsted County, Minnesota ; 103 of the cases were in adolescent boys. Prior restriction of rubella vaccine to girls approaching puberty produced the uneven distribution of cases ; attack rates in unvaccinated male and female adolescents were nearly identical. Vaccine efficacy was 93.5 per cent. During rubella infection, joint pain was noted by 44 per cent of the adolescent boys and by 65 per cent of the adolescent girls. Joint pains or paresthesias following Cendehill rubella vaccination were reported by 8.7 per cent vaccinated adolescent boys, by 2.3 per cent of those with rubella hemagglutination-inhibition antibodies at the time of inoculation, and by 17.9 per cent of those without antibodies ; joint pains or paresthesias were noted by 8.9 per cent of unvaccinated adolescent male control subjects. None of the disorders following vaccination was unusually prolonged or severe.

Growth Hormone Release Inhibiting Hormone in Acromegaly

Besser, G. M., Mortimer, C. H., Carr, D., Schally, A. V., Coy, D. H., Evered, D., Kastin, A. J., Tunbridge, W. M. G., Thorner, M. O. and Hall, R. (*Brit. Med. J.*, 1: 352, 1974) from Medical Professorial Unit, St. Bartholomew's Hospital, London from the Department of Medicine, Royal Victoria Infirmary, Newcastle upon Tyne and from Veterans Administration Hospital and Department of Medicine, Tulane University School of Medicine, New Orleans, Louisiana, U.S.A., write :

Growth hormone release inhibiting hormone (GHRIH) was administered by constant infusion over 75 minutes to eight acromegalic patients at different doses. 100 to 1,000 μg. were equally effective in reducing circulating growth hormone (GH) levels ; 25 μg. lowered GH levels in only five patients, and at this dose the extent of the fall was smaller than from doses of 100 μg or more. 10 μg. was ineffective. Injection of single doses of 500 μg. by intravenous, subcutaneous, and intramuscular routes caused only small and transient reductions in GH levels, though the effect was improved by injecting the hormone intramuscularly in 2 ml. of 16 per cent gelatin. Injection of a suspension of 4 mg. GHRIH in 1 ml. of arachis oil lowered growth hormone levels for between three and four hours.

In four acromegalic patients an oral 50-g glucose tolerance test was performed during a continuous infusion of either saline or 1,000 μg. GHRIH. The "paradoxical" rise in growth hormone seen in these patients during the saline infusion was suppressed by GHRIH. The blood glucose responses were, moreover, modified by GHRIH in that the peak was delayed and occurred at the end of the infusion in each case. A "normal" glucose tolerance curve was converted to a "diabetic" type of response in two patients. This effect could be accounted for by the inhibition of insulin secretion known to occur with large doses of GHRIH.

We speculate that acromegaly may be primarily a hypothalmic disease due to deficiency of GHRIH resulting in excessive secretion of growth hormone from the pituitary and adenoma formation due to inappropriate and prolonged stimulation of the pituitary.

Persistent Ventricular Tachycardia

Yang, C. (*J. Kansas Med. Soc.*, **74**: 418, 1973) from the Department of Medicine, Veterans Administration Hospital, Topeka, Kansas, observes :

A 56-year-old male developed persistent ventricular tachycardia following acute myocardial infarction. This life threatening arrhythmia did not respond to large doses of intravenous administration of lidocaine, twelve 400-watts/second DC countershock treatments, or intravenous administration of propranolol. The ventricular tachycardia in this case was dramatically converted to regular sinus rhythm with intravenous administration of diphenylhydantoin (DPH). Subsequent oral DPH doses maintained an adequate DPH plasma level, and a recurrence of arrhythmia was prevented. The patient tolerated this long-term programme well and with no appreciable side effects.

Sodium Cyanate as a Potential Treatment for Sickle-Cell Disease

Gillette, P. N., Peterson, C. M., Lu, Y. S. and Cerami, A. (*New Eng. J. Med.* **290**: 654, 1974) from Rockefeller University, New York, write :

Thirty-one patients with sickle-cell disease, seven to 49 years of age, were given the antisickling drug sodium cyanate (10 to 35mg. per kg. of body weight per day by mouth) for six to 18 months. Carbamylation of the amino-terminal valine of haemoglobin was dose-related and ranged from 0.03 to 0.67 moles of carbamyl group per mole of haemoglobin tetramer. No toxic effects were observed at a dosage of 35 mg. per kg. per day or less. Occasional gastrointestinal distress and drowsiness occurred.

The previously demonstrated ability of sodium cyanate to diminish the haemolytic rate was confirmed. The cyanate-induced increase in haemoglobin concentration (3 to 38 per cent) was dose-related and resulted from decreased red-cell destruction.

A retrospective analysis of the patients' records revealed a statistically significant decrease in the mean frequency of crises (from 3.6 to 2.1 crises per year) between two groups of patients with low (0.3 mole of carbamyl group per mole of haemoglobin tetramer) and high (< 0.3 mole) carbamylation. Although these studies do not establish the long-term safety and clinical usefulness of sodium cyanate they indicate its potential value and justify large-scale trials.

Recurrent Urinary Tract Infections in Girls

Pieterse, H. F. (*S. Afr. Med. J.*, **48**: 82, 1974), comments :

The important role that vesico-ureteric reflux plays in the perpetuation of urinary tract infections has become increasingly evident. There is general agreement on the importance of its early detection and treatment. It is also evident that the vast majority of children with reflux have congenital anatomical abnormalities of the ureterovesical junction. There are, however, controversial views on the subject, and various concepts of the mechanism responsible for the competency of the ureterovesical junction. The important anatomical factors are the length and diameter of the intravesical (submucosal) ureter, the ratio of length to width, the pliability of the roof of the submucosal ureter and the integrity of the underlying detrusor.

Reflux is not a single disease and the aetiology may vary. It is but a radiographic sign common to several pathological processes.

There is also still considerable debate as to whether primary reflux can maturate and disappear with age. This has an important hearing on the formulation of any prognostic and therapeutic programme.

CURRENT TOPIC

Should My Patient Travel by Air ?†

W. CHERNENKOFF *

The phenomenal increase in air travel during the last several years has brought repeated inquiries to the area or regional medical departments of Air Canada from physicians and from prospective passengers on the advisability of air travel for those who are sick. The information that follows is the policy followed by Air Canada, but other international and regional airlines probably have similar policies.

From experience, we have found that a modern pressurised jet aircraft may carry travellers suffering from minor illnesses without any danger. However, for the sake of other fit passengers, it is not possible to transform the aircraft into a hospital sick room to take care of one patient and this fact should be understood in considering the fitness of a patient to fly.

Physiological Aspect

To understand some of the reasons for decisions made by Air Canada medical officers, we must remember that as altitude increases, atmospheric pressure decreases and this phenomenon produces physiological changes. One result is that alveolar and arterial oxygen tension decreases so that at 10,000 feet, hypoxic levels are reached. Above this altitude, additional oxygen must be supplied to prevent hypoxia from occurring. A second result is that as pressure decreases, air volume increases ; thus air in body cavities and organs can produce symptoms if it is prevented from escaping. A third result may be decompression sickness with resultant neurological and cardiovascular complications, due to conversion of serum nitrogen from solution to gas.

Today's jet aircraft fly between 25,000 and 40,000 feet and their cabins are pressurised to prevent hypoxia, gas expansion and décompression sickness, so that crew and passengers travel in comfort at a pressure equivalent to 6,000 to 8,000 feet altitude. Obviously, the normal healthy passenger from the infant to the very elderly would have no difficulty in flying in the pressurised aircraft, but some situations require special consideration.

Special Considerations

CARDIOVASCULAR SYSTEM :

Until several years ago flight was forbidden except in an emergency to all people known to be suffering from cardiac disease. Many of these patients are now allowed to fly, with perhaps a mild sedative prescribed to overcome apprehensions of flight.

Coronary cases—The acute coronary cases, of course, should not be approved for air travel under any circumstances—pressure from family or the patient himself to return home quickly by air to recover in his own city hospital should not be considered. These patients should not fly for four or more weeks following their myocardial infarction.

Angina pectoris—A patient with severe angina or decubitus angina should not fly unless supplemental oxygen is available during the flight to prevent possible left ventricular failure or sudden coronary thrombosis. The mild to moderate angina patient who can comfortably climb a flight of stairs usually will do well. He must keep in mind that he will have to climb stairs to board the aircraft. Often, attending physicians will recommend a nitroglycerine tablet prior to flight.

Heart failure—Patients with compensated valvular heart disease or controlled congestive heart failure may be accepted for air travel. In some cases, oxygen may be required and should be requested before flight.

Patients with uncompensated valvular heart disease or congestive heart failure must not travel by air.

Hypertension—Any case of severe hypertension should be advised not to travel by air. As a guide, a blood pressure higher than 200/100 would be a contra-indication for long trips by air. The patient with mild uncomplicated hypertension should offer no problem in acceptance for flying.

Anaemia—Patients with severe anaemia (i.e., haemoglobin below 8 g. per cent) should not fly until the anaemia is corrected.

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† Reproduced from the article published in Canadian Family Physician, June, 1974

* M.D., Medical Officer, Air Canada, Saskatoon

Heart surgery—Patients, after operation on the heart, should ordinarily wait at least three or four weeks before flying but exceptions are made on the recommendations of the attending cardiovascular surgeon.

RESPIRATORY SYSTEM :

For the healthy person, only very small compensatory pulmonary changes are required of the respiratory organs to adjust themselves to the usual pressurised cabin altitude. However, for those suffering from respiratory diseases, careful consideration must be given to see whether the patient will be able to tolerate such changes. It should be noted that at 8,000 feet the atmospheric pressure is reduced by about 25 per cent.

Therefore, the main consideration for this group should be lack of interference with the transfer of oxygen from airways to lungs and with mechanical expansion of gases.

Catarrhal group—Upper respiratory infections such as the common cold, otitis media, or acute sinusitis obviously may cause blockage of the eustachian tubes and sinuses, resulting in inability to ventilate the passages with severe pain on ascent and descent and possible tissue damage.

Usually one of the vasoconstrictor drugs will cause shrinkage of the inflamed tissues with resulting satisfactory ventilation of the sinuses and middle ear and consequent prevention or relief of symptoms. However, severe cases of 'acute head cold' should be advised to delay air travel until the symptoms have subsided.

Cyanosis—Those with any severe pulmonary disease producing cyanosis at rest or reducing vital capacity to below 50 per cent of normal should not fly.

Asthma—Severe cases of asthma should be advised against air travel. During an acute attack of any degree the patient should not undertake air travel. The mild asthmatic who is under control may be allowed to fly.

Pneumonia—These patients should not travel by air. If they must be accepted because of emergency situations, then all such lung cases should be given oxygen at all times during flight to assist in maintaining normal oxygen blood levels.

Emphysema, bronchiectasis—These cases can be accepted for air travel unless these conditions cause definite respiratory embarrassment. The administration of oxygen may be indicated and should be requested before flight.

Obstructive lung cancer, pulmonary abscess, mediastinal tumours, pneumothorax and bulbar poliomyelitis—These patients should not fly because of the danger of rupture of adjacent organs.

Tuberculosis—Cases with active pulmonary tuberculosis or with cavitation should definitely be rejected for air travel.

NERVOUS SYSTEM :

Patients with diseases of the central nervous system may be accepted for air travel provided they do not require assistance and do not have faecal or bladder incontinence.

Psychopaths—These are very often sensitive to air sickness and an attendant will usually be required.

Mental patients—Cases with mental deficiency, if they are fully capable of looking after their own needs and will not get lost on their own, may travel without an attendant.

A psychotic patient should not be transported by air because of the disturbance which such a passenger may create in an aircraft. When such travel is absolutely required, then psychotic patients must be accompanied by a physician or a trained medical psychiatric aide. Even then, in certain instances travel may be refused depending on each individual situation.

Nervous patients—Can usually be relaxed by sedation or relaxation methods and reassurance. They usually make satisfactory passengers.

Epilepsy has a tendency to manifest itself at higher altitudes due to anxiety, hyperventilation and mild hypoxia. Unless well controlled by medications, they should not be accepted for air travel.

CONTAGIOUS DISEASES :

For obvious reasons, prospective passengers suffering from contagious diseases must be refused for air travel under any circumstances.

ACCIDENT CASES :

Patients wearing plaster casts will be transported by air if the casts are not of such size or shape as to prevent the passenger from being accommodated in the usual aircraft passenger seat.

Patients whose mandibles are fixed by wiring are not allowed to fly, since if air sickness were to develop, the chance of aspiration of vomits would be high.

STRETCHER CASES :

These are becoming more common and requests are more frequent. It should be pointed out that the stretcher to be used must be an airline stretcher to which the patient is transferred from the ambulance stretcher. This transfer cannot be accomplished if there is head traction, etc. In these circumstances travel would have to be refused. It should also be pointed out that the stretcher patient will have to occupy the space of three seats plus an attendant's seat. Thus, the cost involved to the passenger is according to the number of seats. However, the cost in our affluent society does not seem to be a deterrent and requests for stretcher air travel are frequent.

It should be noted that stretcher cases will usually be accepted only in emergency situations, since it is generally necessary to remove aircraft seats to provide space for the stretcher. Any stretcher patient over 6'3" in height cannot be approved for flight because of the extreme difficulty in accommodation, as experienced in the past.

TERMINAL ILLNESSES :

Under practically no circumstances should authority be given for air travel of prospective passengers in the terminal stages of illness with a view to rapid transfer of the patient to a distant point where death may occur among friends or loved ones. The difficulties and hazards of endeavouring to perform this humanitarian type of service far outweigh the benefits obtained.

SURGICAL PROCEDURES :

The average postoperative case may be accepted for air travel provided they do not require any special attention *en route* and can get to the bathroom by themselves.

Following major abdominal or bowel surgery, patients should wait about two weeks before flying so as to minimise the risk of wound dehiscence. Patients with bowel obstruction or irreducible hernia should not fly until after appropriate surgery. Acute active peptic ulcer cases should not fly because of the risk of perforation following expansion of intestinal gases at increased altitude. Ventriculography and air encephalography patients should not fly until the air which has been introduced is absorbed. This takes at least a week.

INTOXICANTS AND DRUGS :

The obviously intoxicated passenger or drug addict must not be allowed to travel by air because of the nuisance to fellow passengers and crew.

Sound common sense suggests definite refusal of such passengers for air travel for obvious reasons.

VISUAL PROBLEMS :

Blind patients may fly whether or not they are accompanied by another passenger. A dog trained to lead the blind, when properly muzzled and harnessed, will be carried free of charge in the aircraft cabin when accompanied by a person with impaired vision dependent upon such a dog. Passengers who wear contact lenses frequently express that their eyes feel irritated while flying in jet aircraft. The reason, of course, is that the outside high altitude subzero temperature is heated to room temperature inside the cabin with resultant large expansion of gases and drop in humidity. These passengers may simply use artificial tear drops.

PREGNANCY :

Habitual aborters should be discouraged from flying in the first trimester of pregnancy. Those with normal pregnancies may fly up to and including the eighth month on domestic and transoceanic flights. After that they should not be accepted for any transoceanic flights. However, for domestic and non-transoceanic flights, the pregnant patient in the last month of pregnancy may travel provided the baby's estimated date of birth is not less than five days from the date of departure. The attending physician's certificate of fitness to travel is required, stating the estimated date of delivery. Such certificate should be prepared in triplicate ; one to be retained by the airline at the originating point, while the second and third copies are to be held by the passenger for use when requested along the way or to change to another airline. The pregnant patient should fasten her seat belt below the foetal bulge. Seat belts should be fastened at all times to decrease the likelihood of injury during turbulence, especially clear air turbulence which is not easily detected even by modern radar means.

POINTS TO REMEMBER :

Both alcohol and smoking, the main source of carbon monoxide, act synergistically with hypoxia and may contribute to unnecessary fatigue during long flights, thereby affecting the already handicapped traveller.

Time zone changes may upset the circadian rhythms on long flights and the body may need additional time for readjustment.

Very young infants are usually good travellers. The parents should feed the infant during change of altitude to keep the eustachian tubes patent and to keep the infant happy. However, even if not fed, the parent should be reassured that the infant suddenly crying simply assures that the eustachian tubes will open enough to prevent any ear damage similar to an adult yawning to open the eustachian tubes during flight.

When recommending passengers for flight, consideration should be given as to how the passenger would tolerate uncontrollable conditions such as flight delays, missed connections or even rerouting to another destination because of weather conditions or other factors.

It should be remembered that commercial aircraft are not equipped with electrical power sources for the use [illegible] electrically-powered respirators, suction apparatus, etc.

DIETS :

Special medical diets (e.g., diabetic or low salt diets) will be supplied by the airline provided the request is made at the time of reservation or at least 48 hours prior [illegible] departure.

Passengers who routinely give themselves injections or medications should have no difficulty but they should be encouraged to take along sufficient supplies and syringes, since measurements vary from country to country. Medicalert bracelets should of course be worn in appropriate cases.

OTHER CONSIDERATIONS :

The previous guidelines had the incapacitated passenger in mind. However, we must also consider the comfort and safety of all other passengers. Under no circumstances may an incapacitated passenger impose a threat to the security or health of his fellow passengers. The treat to other passengers is basically in two forms :

1) Aesthetic—The most common problem encountered is elderly patients who may not have bowel and/or bladder control. Usually, these are patients who have difficulty with ambulation and a request for a wheel chair is often an indication of such a problem.

The airline will willingly accept wheel chair patients provided they do have bladder and bowel control and provided arrangements have been made in advance. In certain instances and on longer flights, an attendant may be required to travel with the wheel chair patient.

2) Safety—There are those among the human population whose behaviour is not conducive to safe travel by air [illegible] passengers and crew. At all possible costs, this must be watched for and we as physicians occasionally have insight into a patient's personality or behaviour which may indicate reasons to contra-indicate air travel. Remember, a pilot cannot pull over to the side of the road if a passenger suddenly becomes violent.

CONCLUSION

The guidelines are simply that—guidelines. All these cases, of course, must be considered on an individual basis and actually there are very few conditions which would absolutely preclude flying, particularly when the distance is relatively short and the patient is accompanied by a qualified medical attendant.

Airline personnel are warned that the traveller should 'look normal' and 'smell normal'. If they are in any doubt, they are required to refer the problem to the Area or District Medical Officer. Usually a phone call to the attending physician clarifies the situation, or the attending physician may give suggestions about his patient's needs. Rarely, does the airline medical officer need to see the patient before accepting or rejecting for air travel. Probably the best guide for all of us when we make a decision regarding a patient's fitness to fly is : 'Would I want to be with my family on the same aircraft ?' Usually, the answer to that is the appropriate one.

SUMMARY

The increasing frequency and convenience of air travel means that more incapacitated passengers are wanting to travel by air.

Some guidelines for estimating fitness to fly, based on airline regulations, are described.

NOTES AND NEWS

Curbs on Doctors Going Abroad

Replying to a debate on the brain drain in the Lok Sabha the Science and Technology Minister, Sri C. Subramaniam said the Government was trying to evolve some procedure under which doctors who wished to go abroad were compelled to return to India after a certain period.

He cautioned that the Government would have to be more discriminating in future in allowing medical personnel to go abroad for advanced studies and specialisation. Doctors had now all the opportunities they needed within the country and except for certain narrow areas of specialisation, India could offer them better opportunities for study and training, Sri Subramaniam said.

The Minister felt that medical personnel would still require to be treated on a footing different from those engaged in research and development. For the latter, the scope remained limited, though now the "atmosphere in the country is changing and gradually there are more opportunities."

Legislation to Regulate Private Medical Colleges

The Government was actively considering introduction of a legislation to regulate the functioning of private medical colleges, the Union Health Minister, Dr. Karan Singh, said in the Lok Sabha. It was a fact that the private medical colleges were charging capitation fees admitting students varying between Rs. 5,000 and Rs. 25,000, he added.

Junior Doctors May Get NPA

According to a *Times of India* report the payment of non-practising allowance, one of the demands over which junior doctors in Delhi, Chandigarh and Pondicherry had gone on a 96-day strike early this year, is being given favourable consideration by the finance ministry, now that it is seized of the issue after the cabinet had discussed the junior doctors' demand for NPA of Rs. 150 per month.

The Centre has announced its decision over the fixation of pay of registrars in accordance with the recommendations of the Third Pay Commission. The senior residents will now be entitled to the emoluments as sanctioned by the Government for registrars.

Formal orders regarding the withdrawal of notices about scholarship amounts are also being issued to the stipendiaries scholarship amounts are also being issued to the stipendiaries and their sureties.

New Remedy for Arthritis from Common Haldi

A new drug, developed from *curcuma longa* (common *haldi*) at the Central Drug Research Institute at Lucknow may prove a boon to arthritis patients, according to Institute Director, Dr. A. B. Kar.

Dr. Kar recently told newsmen that the compound developed from *haldi* had passed all clinical trials on animals and humans. No adverse effect was noticed. The Drug Controller of India had permitted clinical trial of the drug on human beings.

Doubts on Acupuncture Anaesthesia

A report submitted to the Director-General of the Indian Council of Medical Research has admitted that the acupuncture anaesthesia tried in a recent project "failed" in some cases.

It is learnt that three of the six persons who recently had operations at Safdarjang Hospital following acupuncture treatment, complained of acute pain during the operation. One of them was a young woman brought for a caesarean operation. Three acupuncturists, including a couple from Bombay and a Calcutta doctor inserted needles into the limbs of the patient.

Dr. B. L. Bhattacharjee, Emeritus Medical Scientist in the ICMR, said that after inserting the needles for about 20 minutes, the doctors "tested" her for pain reactions by pricking her skin with a needle and squeezing it with forceps. Finding that she felt no pain, they proceeded with the operation. But when the scalpel was used and the upper skin cut, she complained of pain. Dr. Bhattacharjee said they immediately put her under local anaesthesia (as it was a pregnancy case) and proceeded with the operation.

In two other cases, he said, they put the patients under general anaesthesia when they complained of pain during the operation after acupuncturing.

I.A.S.M.'s Annual Conference Held at Patna

The IVth annual conference of the Indian Association of Sports Medicine was held on July 13-14, 1974, at the I M.A. Hall, Patna.

Dr. Ramraj Prosad Singh, Education Minister and Chairman of Sports Council, Bihar State, inaugurated the conference and Dr. Alok Ghosh, President of I.A.S.M., presided. Dr. A. K. N. Sinha, a past President of I.M.A. and Dr. P. C. Bhatla, Hony. General Secretary, I.M.A., were present as chief guest and guest-speaker respectively. The executive committee for 1974-75 was elected with Dr. Alok Ghosh (Calcutta) as President and Dr. D. N. Mathur (Patiala) as Secretary.

REVIEWS

Pharmacology and the Future of Man, Vol. 3: Problems of Therapy—Main Editor : George H. Acheson, Editors : George T. Okita and George H. Acheson, S. Karger, Basel, München, Paris, London, New York, Sydney, 1973, 24.4 cm. × 17 cm., pp. xviii+507, complete set in 5 vols. S. Fr. 357.— ; US $143.00 ; DM 339.— ; £ 51.75.

Pharmacogenetics is an emerging discipline in modern medicine; during the last two decades pharmacogenetics emerged as a strong link between pharmacology and genetics. Primarily because of the impetus provided by the exploration of primaquine haemolysis, succinylcholine apnoea, and isoniazid neuropathy, W. Kalow, a pioneer in the field rightly observes that the genetic control of drug action deserves emphasis and study. This new knowledge will serve to improve the means of predicting drug responses in individuals and in populations so that benefits are increased while iatrogenic or drug-induced damage is decreased. Polypharmacy with all its merits and demerits has become a common therapeutic practice; the points for and against have been presented nicely with examples by both K. MacCannell and L. Lasanga.

Pharmacokinetic study of drugs has ushered in a new era of rigorous quantitative clinical pharmacology and G. Levy's presentation of facts has introduced considerable amount of mathematics and statistics in the study of drug effects *vis-a-vis* its bioavailability, serum concentrations, Discussion on correlation between drug concentration in plasma/serum/blood and drug response, toxicity in man, particularly of beta-receptor-blocking drugs, anti-arrhythmic agents, cardiac glycosides, tricyclic antidepressants, and on hepatotoxicity; pros and cons of interactions have been done in details. There is detailed discussion also on the pharmacology and therapeutics of bloodsugar-lowering sulfonylureas.

Cancer chemotherapy occupies about half of the volume. Cancer is still a riddle wrapped in mystery; key scientific problems viz, cell population kinetics in cancer patients, pharmaco-kinetics of anti-cancer drugs, assay of tumour cells, supportive care for secondary infections, role of immunotherapy in cancer, biochemical screening of drugs etc., etc., have been discussed in details. At present, considerable amount of light has been thrown on viral oncogenesis and pro-virus hypothesis; there are good chances to find new drugs by screening for inhibition of viral DNA polymerases; such inhibitors tomorrow may become tools in human chemotherapy. D. Crowther discusses the pros and cons of combination therapy in acute leukaemia. K. D. Bagshawe deals elaborately about the scope and limitations of immunotherapy in cancer (active, adoptive, and passive); it is now clear that despite extensive efforts in the area of immunotherapy, the achievement so far are marginal rather than decisive; still there remains good ground for long-term optimism. One of the main goals of cancer research has been to find a basis for discriminating effectively between normal and cancerous cells. Relationship between tumour immunotherapy one hand and surgery, radiotherapy, and chemotherapy on the other needs still to be elucidated. Immunosuppression due to anti-cancer drugs may stand in the way of achieving immunotherapeutic success in cancer; epidemiological consequences of immunosuppression or immunodeficiency are another aspect which needs exploration. Use of non-specific immuno-stimulants like BCG, Freund's adjuvant, etc., is a promising field in immunotherapy.

This volume will be of immense use and interest for pharmacogeneticists, clinical pharmacologists, diabetologists, cancerologists and immunotherapists.

SISIR K. MAJUMDAR

Pharmacology and the Future of Man, Vol. 4: Brain, Nerves, and Synapses, (Proceedings of the Fifth International Congress on Pharmacology. San Francisco. Calif., July 23-28, 1972). Main Editor : George H. Acheson, Editors : Floyd E. Bloom and George H. Acheson, S. Karger, Basel, Munchen, Paris, London, New York, Sydney, 1974, 24.3×17 cm., pp. xiii+484., complete set vols. 1-5 : S. Fr. 357, U.S., $ 143.00, DM 339,—£51.75.

Brain's functions are performed through a vast array of neurotransmitters viz., acetylcholine, catecholamines, Y-aminobutyric acid, serotonin, etc., etc. Pharmacological agents acting on memory and learning, their pharmacogenetical aspects, role of biogenic amines on behavior have been dicussed in details.

Biochemistry and pharmacology of sleep viz., role of monoamines in sleep mechanisme, effect of CNS drugs on different stages of sleep, monoamine regulation of sleep-waking cycle, methodology and clinical application of sleep, neuroendocrine correlates of sleep stages in man, corticosteroids and neurotransmitter activity during human sleep have been elaborated with evidences.

Pharmaco-kinetics of different neurotransmitters have been presented with lucidity. Considerable importance has been attached to mast cells and platelets as experimental models for the study of biogenic amines and aminergic neurons respectively, and also to sodium-calcium interaction *vis-a-vis* mode of drug action. Calcium is involved in all fundamental processes of the body-secretion of glands (endo-or exocrine), contraction of muscles (striated, cardiac or smooth) and also in the release of neurotransmitters. The bearing of membrane and transport studies for pharmacology has again come into limelight. I. Janku presented the time and dose relationships in the theory of quantal drug responses with lot of mathematics and statistics.

J. Axelrod gives a brief profile of the pineal gland as a neurochemical transducer. U. Trendelenburg reviews the pre-and post-junctional effects of cocaine, and Edith Bulbring cites a short resume on the recent developments in the study of drug action on cellular mechanisms in smooth muscle again implicating calcium.

As mentioned earlier in this series of review, it is an excellent work. Its get-up is fine. It is well-indexed.

SISIR K. MAJUMDAR

Pharmacology and the Future of Man, Vol. 5: Cellular Mechanisms, (Proceedings of the Fifth International Congress on Pharmacology, San Francisco, Calif., July 23-28, 1972), Main Editor : George H. Acheson. Editors : Robert A. Maxwell and George H. Acheson, S. Karger, Basel. Munchen, Paris, London, New York, Sydney, 1973, 24·3×17 cm., pp. xviii+451, complete set vols 1-5 ; S. Fr. 357.- ; U.S. 143.00 ; DM 339.- £51.75.

This volume deals extensively with molecular pharmacology, molecular cardiology and immunopharmacology ; it elaborates with experimental evidences how drugs interact at the cellular level.

Various authors discuss the cellular and molecular basis of taste and smell receptors. Cholinergic receptor mechaminsms also have been elaborated in details. R. Paoletti, E.W. Sutherland and others discuss the physiology, pharmacology and therapeutic implications of cyclic AMP and other nucleotides. Cyclic AMP is now on top of the table. The regulatory effects of cyclic-3'5'-adenosine monophosphate (cAMP) on adipose tissue metabolism have been investigated ; the interaction of cAMP with sympathetic and hormonal control (second intracellular messenger) and locally synthesised prostaglandins, is clarified. Prostaglandins are also involved in the formation of cAMP in CNS, as shown in animal and human tissues. In the heart, the prostaglandin regulation of the cAMP system is also demonstrated at metabolic and pharmacological levels. cGMP present in this organ, also contributes to the regulation of the effects of cAMP. Evidence suggests that cyclic AMP is controlled by the sympathetic activity, while cGMP seems to be correlated with cholinergic transmission ; cyclic GMP seems to be the physiological antagonist to cyclic AMP. Cyclic AMP or its analogs may have some role in the treatment of bronchial asthma, transformation of malignant cells and in substituted hormone therapy. It is pregnant with potentialities in both curative and diagnostic medicine. M. Rochà E Silva and others review the different aspects of the autopharmacology related to kinins, kinases etc. ; PG's has added a new feather to the cap of autocoids J. R. Vane proposes that PG's are the mediators of pain, pyrexia and inflammation ; Vane's hypothesis further postulates that the molecular mechanism of action of non-steroid, anti-inflammatory, acidic anti-pyretic and analgesic drugs (aspirn-like compounds, indomethacin, paracetamol, phenylbutazone, mefenamic acid, etc., is through inhibition of PG's biosynthesis due to inhibition of prostaglandin synthetase or through inhibition of their release. Anti-inflammatory steroids may interfere with the PG system in some other way; they may prevent the replacement of the synthetase enzyme, or interfere with the actions of PG's or the transport or release of PG precursors such as arachidonic acid. Side effects like peptic ulceration by aspirin-like drugs, nephrotoxicity of acidic anti-inflammatory drugs, salt-retaining property of phenylbutazone could also be due to inhibition of PG biosynthesis. The authors also give a brief profile of some of the functions of PG's. Considerable light has been thrown on immunopharmacology, radioimmunoassay of drugs and molecular basis of drug allergy.

It is a custom to use generic name of drugs but through oversight some trade names of drugs have crept into some articles ('Valium' in page 399, 'Phenergan' in page 359). These minor mistakes should be corrected.

It is an excellent series. It is well-indexed. Its get-up is fine. The editors, the authors and the participants deserve our sincere gratitude and appreciation. This series will be a useful addition to any shelve of an institution engaged in medical and biomedical research.

SISIR K. MAJUMDAR

OBITUARIES

Dr. Jamuna Prasad De

Dr. Jamuna Prasad De passed away on 1-6-74 following myocardial infarction at the age of 47.

Born in 1927 at Garhbeta in the Midnapore District of West Bengal, Dr. De qualified as an L.M.F. in 1950 from the then Calcutta Medical School and later obtained the M.B.B.S. degree in condensed course. He set up private practice in his home town and was popular as a physician.

Dr. De was an active member of I.M.A. Garhbeta Branch and used to take keen interest in the activities of not only his own Local Branch but also in those of the Bengal State Branch. He leaves behind his widow, three sons and a daughter.

DR. J. P. DE

DR. S. D. VOHRA

Dr. S. D. Vohra

Dr. S. D. Vohra was born in 1902 at Amritsar. He qualified himself as an L. S. M. F. in 1926 from Glancy Medical School, Amritsar and started private practice with Radiology as his speciality.

A devoted builder and organiser of the Association in Punjab Dr. Vohra was Hony. Secretary of the I. M. A., Amritsar Branch, from 1947 to 1953 and then again in 1961-62. He was President of the Branch for more than five years and also held the office of the State Secretary, Punjab State Branch for two terms. He also represented his Branch to the State Council and the Central Council of I. M. A. for more than two years. In recognition of his meritorious services in the cause of development of I. M. A. in Punjab Dr. Vohra was awarded a shield in 1972 at the 38th Punjab State Medical Conference held at Barnala. Dr. Vohra served on the panel of E. S. I. doctors in Amritsar for more than 15 years.

He passed away on 21-5-74 leaving behind his wife, three daughters and three sons, two of whom are doctors.

Dr. A. B. Ray

Death took place on 6-7-74 of Dr. Anath Bandhu Ray, a former Health Minister of West Bengal and a long-time member of I.M.A.

Born in 1898 Dr. Ray passed the matriculation examination securing a scholarship and took his I.Sc. examination from Hooghly. He graduated in medicine in 1923 from R. G. Kar Medical College, Calcutta. A brilliant medical student all through, he was class assistant and prosector of physiology and anatomy in his college.

Dr. Ray joined Bankura Sammilani Medical School as a teacher of anatomy and surgery. Later in 1943 he became Superintendent of the institution and continued in this capacity till 1948. He became Health Minister in the first post-independence cabinet of West Bengal formed under the leadership of late Dr. B. C. Ray. It was during his tenure as Health Minister that the Bankura Sammilani Medical College, set up in 1956 under private management, was taken over by the State Government. He was connected with various social organisations in Bankura and initiated several public welfare projects in the district.

DR. A. B. RAY

DR. A. T. DASGUPTA

Dr. (Major) A. T. Dasgupta

Born on 11-1-1902 Dr. A. T. Dasgupta passed the M.B.B.S. examination in 1928. He joined military service in 1941 during the Second World War. On his release from the army in 1947 he came to settle down at Asansol and started private practice. Within a few years he rose to be one of the leading practitioners in the town. Besides his private practice, he was attached to the Indian Iron and Steel Co. Ltd., Burnpur, as a medical officer.

Dr. Dasgupta was connected with the Asansol Branch of I.M.A. since 1947 and was its Vice-President for three successive terms. He was a good sportsman and a popular figure in the town.

He passed away on 4-11-1973 leaving behind his wife, two daughters and only son.

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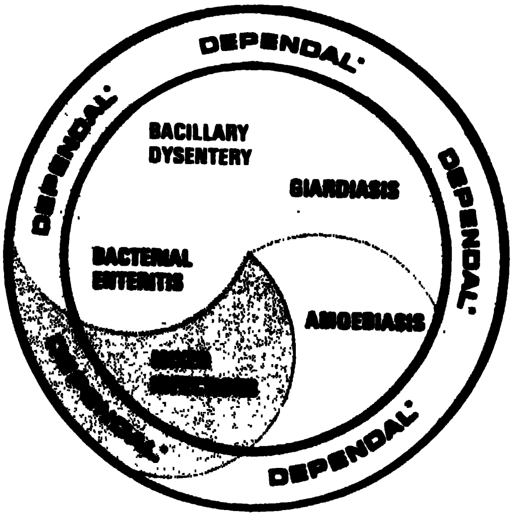

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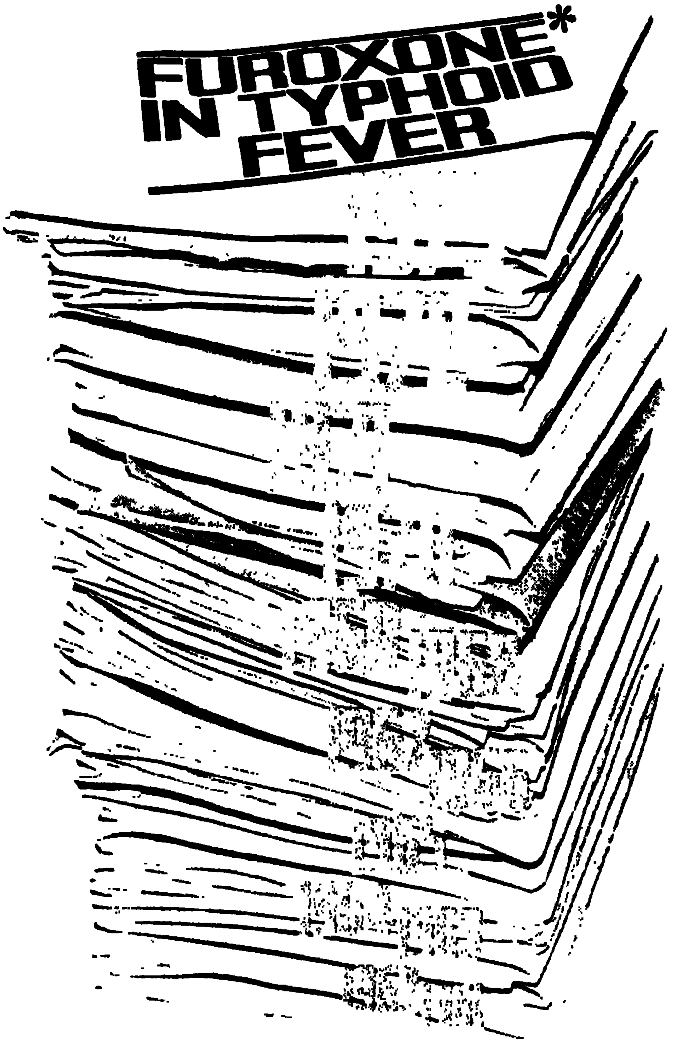

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Goodman and Gilman, Pharmacological Basis of Therapeutics, 1970, p. 1134

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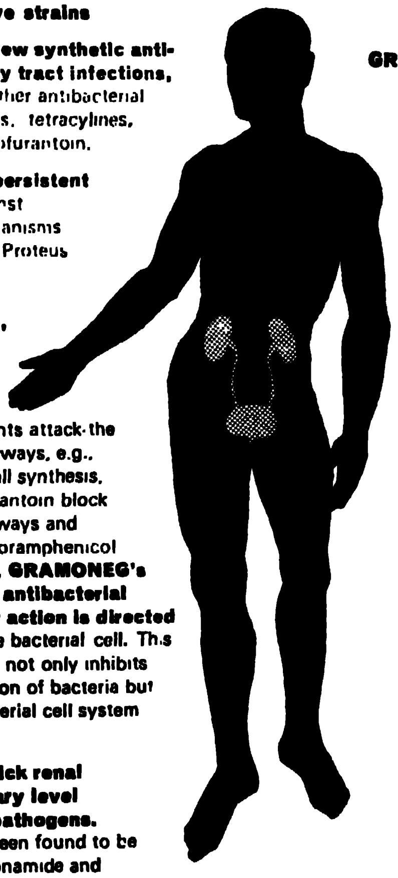

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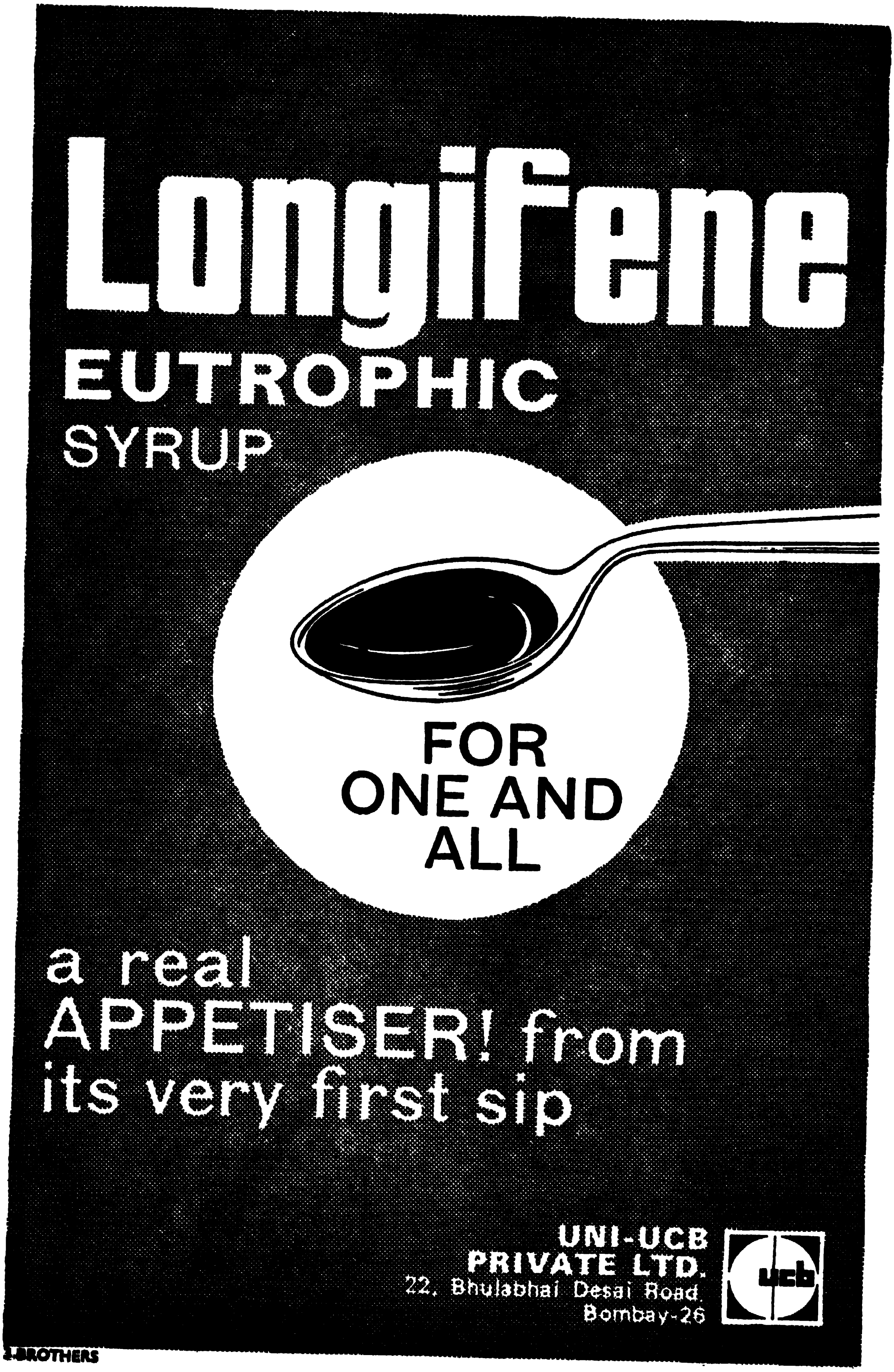

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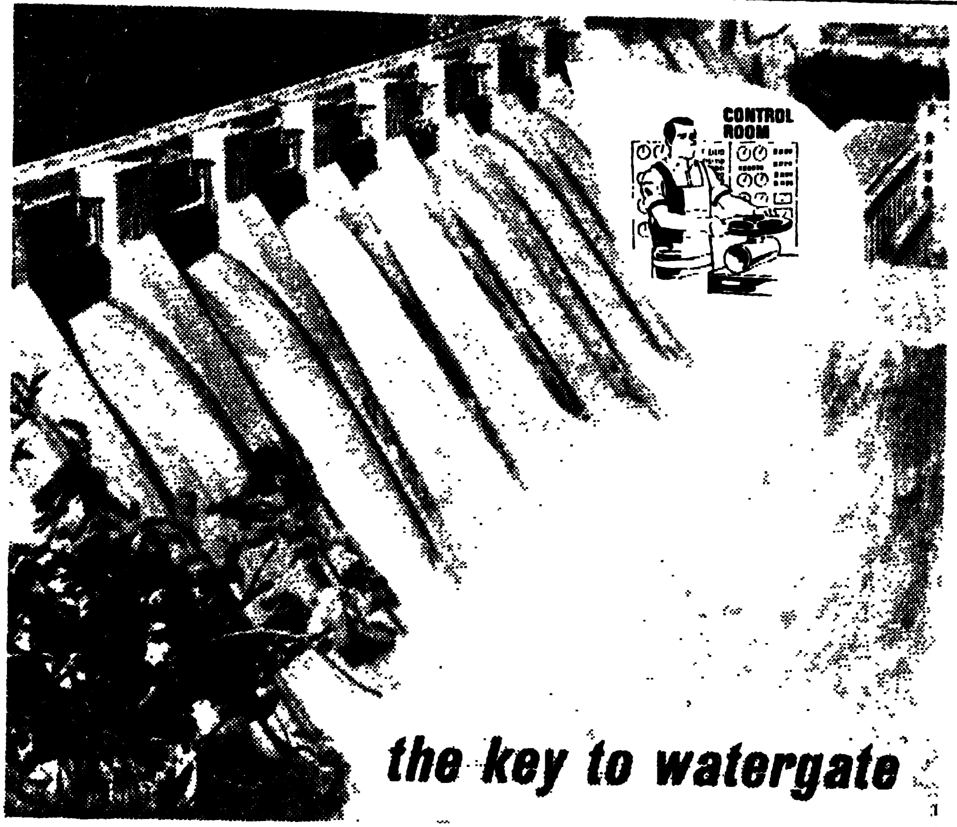

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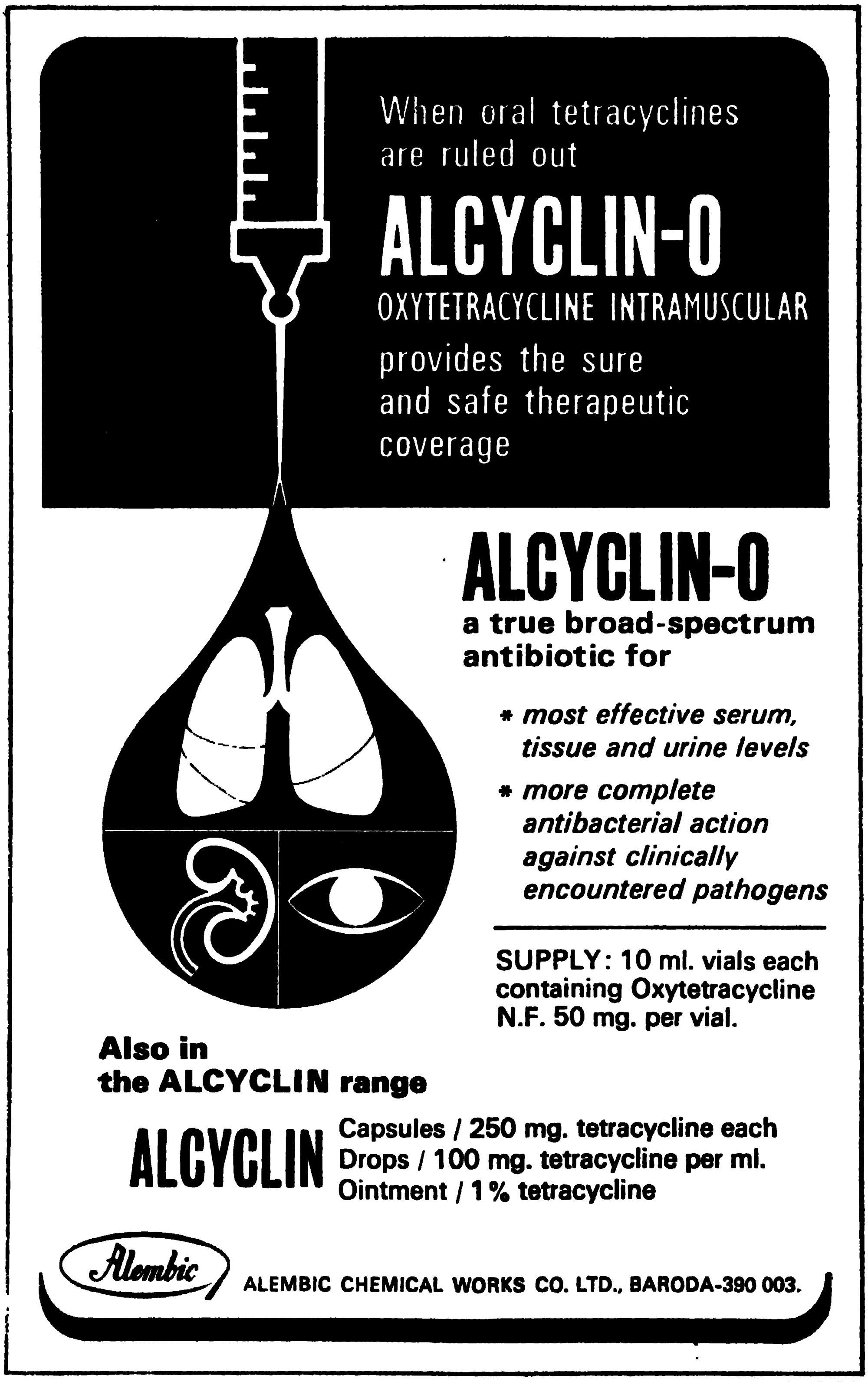

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ORIGINALS AND PAPERS

1

Accidental Haemorrhage †

N. N. ROY CHOWDHURY*

[*Received for publication February 27, 1974*]

Ante partum haemorrhage as a complication of pregnancy was known to exist from the time of Hippocrates. But it was Edward Rigby in 1776 who first crystallised the concept of accidental haemorrhage. He called it accidental because he thought it "due to violence done to the uterus by blow or fall", though we are now sure that the majority of the cases are not due to trauma. Later on, though Holmes (1901), and De Lee (1901) suggested the names "Ablatio placentae" and "Abruptio placentae" respectively, the original term of Rigby (*loc. cit.*) still persists.

Two major problems regarding the accidental haemorrhage confront the medical world today. One is that peculiar pathological conditions develop the accidental haemorrhage, specially in concealed variety, the most ill-understood and dangerous complications being afibrinogenaemia and anuria. The other is that the maternal and perinatal death rate has remained almost stationary since the days of Rigby (*loc. cit.*) in spite of the enormous advancement in the medical science in recent years.

In the author's small series of 76 cases, there were 2 maternal deaths and 40 foetal deaths (2.6 per cent and 52.6 per cent respectively). Therefore, this condition requires careful study.

MATERIAL AND METHOD

This is a review of 76 cases of accidental haemorrhage out of 13,250 confinements in the R. G. Kar Medical College, Calcutta during the period from January, 1971 to October, 1972. Total number of ante partum haemorrhage during this period was 198 of which 108 were placenta praevia, 76 were accidental haemorrhage, 10 due to idiopathic factors and 4 cases due to cervical lesions associated with pregnancy.

OBSERVATIONS

The incidence of accidental haemorrhage in relation to total number of cases of placenta praevia, ante partum haemorrhage and total number of admission during the above period was 1 : 1.6 : 2.8 : 174.3 (Table 1).

Table 1—*Showing the Incidence of Accidental Haemorrhage*

	Total No. of cases	Per cent
Number of confinement	13,250	
Ante partum haemorrhage	198	
Accidental haemorrhage	76	
Relation of accidental haemorrhage to total number of ante partum haemorrhage		38.3

Table 2 shows the distribution of the types of cases in the present series of 76 cases. Higher incidence of concealed accidental haemorrhage in the present series (16 out of 76 cases—21.1 per cent) may be explained by large number of referred cases being admitted in moribund state in the teaching institution.

Table 3 shows the distribution of associated condition in the present series of accidental haemorrhage. It is apparent that the commonest actiological factor in this series was toxaemia of pregnancy—25 cases (32.9 per cent)

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Table 2—*Showing the Type of Cases with Accidental Haemorrhage*

Type	No. of cases	Per cent
Revealed	8	10.5
Mixed	52	68.4
Concealed	16	21.1

next to which was essential hypertension—8 cases (10.5 per cent). Under the heading unclassified there were 24 cases (31.6 per cent) and there was a very high incidence of nutritional macrocytic anaemia with folic acid deficiency (18 cases—23.7 per cent). Table 3 also shows the comparative analysis of the incidence of clinical conditions associated with accidental haemorrhage of the present series with that of Browne (1952). In the latter series 74 per cent cases were associated with hypertension—either toxaemic or possible toxaemic and the remaining 26 per cent cases were definitely non-toxaemic. But in the present series toxaemic and non-toxaemic hypertension was associated with 44.7 per cent cases with a very high incidence of macrocytic anaemia with folic acid deficiency.

Table 3—*Showing the Incidence of Clinical Condition Associated with Accidental Haemorrhage*

Clinical condition	No. of cases	Per cent
Browne (1952):	100	
Toxaemic	24	24
Definite non-toxaemic	26	26
Possible toxaemic	41	41
Essential hypertension	9	9
Present series (1971-72):	76	
Toxaemic	25	32.9
Essential hypertension	8	10.5
Chronic nephritis	1	1.3
Macrocytic anaemia with folic acid deficiency	18	23.7
Unclassified	24	31.6

Table 4 shows the incidence according to the age group. The incidence was highest in the age group between 26 and 30 years (31.6 per cent).

Table 4—*Showing the Incidence of Accidental Haemorrhage according to Age Group*

Age group	No. of cases	Per cent
Between 16 and 20 years	8	10.5
Between 21 and 25 years	18	23.6
Between 26 and 30 years	24	31.6
Between 31 and 35 years	12	15.8
36 years and above	14	18.5

In the present series only 6.7 per cent of cases were in primigravidae and 64.4 per cent were in grande multiparae (para 5 and above). The details are shown in Table 5.

Table 5—*Showing the Incidence of Accidental Haemorrhage according to Parity*

Parity	No. of cases	Per cent
Para 0	5	6.7
Para 1	3	3.9
Para 2	10	13.2
Para 3	3	3.9
Para 4	6	7.9
Para 5 and above	49	64.4

Table 6 shows the incidence according to duration of pregnancy. It is apparent from this Table that the maximum number of cases had haemorrhage between 33 and 36 weeks of pregnancy (72.3 per cent).

Table 6—*Showing the Incidence of Accidental Haemorrhage according to Duration of Pregnancy*

Period of gestation	No. of cases	Per cent	
28 to 32 weeks	6	7.9	
33 to 34 weeks	25	32.9	72.3
35 to 36 weeks	30	39.4	
37 to 40 weeks	15	19.8	

The clinical findings on admission of the cases are tabulated in Tables 7 and 8. It appears from these Tables that there is no difficulty in diagnosis of the revealed variety of accidental haemorrhage. The prognosis of both mother and baby of this group is also comparatively good than that of the others.

Table 7—*Showing the Clinical Findings of the Cases on Admission*

Clinical findings	No. of cases
a) Evidence of shock	35 (including mild, moderate and severe group)
b) Haemoglobin values:	
Less than 6 g.%	20
Between 6 and 8 g.%	25
Above 8 g.%	31
c) Evidence of toxaemia:	
Mild	15
Severe	10

But the problem is with the mixed and concealed types of accidental haemorrhage where the patients suffer from profound shock even when there is no or very slight external haemorrhage. Browne (*loc. cit.*) recognised an early stage of the disease and gave it the name "Phase I" when foetal heart sounds slightly alter and prompt caesarean section may save the baby in most of the cases. When actually major degree of abruptio has occurred, he called that as "Phase II". In the present series of 76 cases, only one was diagnosed in "Phase I" as the average hospital patients usually come very late when abruptio goes to major degree.

Table 8—*Showing the Features on Abdominal Examination of 76 Cases of Accidental Haemorrhage on Admission*

Abdominal examination	No. of cases
a) Height of fundus:	
i) More than duration of pregnancy	24
ii) Rapidly increasing height	10
iii) Corresponding to duration of pregnancy	52
b) Tone of the uterus:	
Hypertonicity	20
c) Tenderness on abdominal palpation:	
Localised	56
Generalised	10
No tenderness	10
d) Palpation of foetal parts:	
i) Easily palpable	50
ii) Palpable with difficulty	8
iii) Not palpable	18
e) Presentation and engagement:	
i) Vertex	68
ii) Breech	8
iii) Others	Nil
Presenting part engaged	54
Presenting part not engaged	22

The nature of treatment done and method of delivery in the author's series were as follows:

The nature of delivery were as follows: (a) Vaginal—i) normal—69, ii) with forceps—4. (b) Abdominal—i) Lower segment caesarean section—2 cases and (ii) caesarean hysterectomy—1 case. Treatment comprised initial injection of morphine sulphate gr. ¼ to all cases on admission, followed by infusion of 5 per cent glucose drip in 56 cases (amounts varying from 500 ml. to 3 litres), blood transfusion in 45 cases (300 ml. to 2.5 litres), human plasma in 6 cases (300 ml. to 1 litre).

Nature of interference, if required, consisted of the following: i) No interference in 20 cases. ii) artificial rupture of membranes (low)—35 cases, (iii) artificial rupture of membranes and synthetic oxytocin drip—18 cases, (iv) lower segment caesarean section—2 cases and (v) caesarean hysterectomy (Couvelaire uterus)—1 case.

The interval period between rupture of the membranes and delivery is shown in Table 9. It is also evident that the maternal complications have got direct relationship with this time interval. Table 10 shows the complications that develop in labour and puerperium.

The details of maternal mortality rate of various authors including that of the present author are tabulated in Table 11. Maternal and foetal deaths have got definite relationship with types of accidental haemorrhage, the lowest being in the revealed type and the highest being in the concealed type. The details are shown in Table 12.

Table 9—*Showing Artificial Rupture of Membrane and Delivery Interval in Accidental Haemorrhage*

Interval period	No. of cases
a) Less than 4 hours	9
b) 4 hours to 6 hours	36
c) 7 hours to 8 hours	5
d) More than 8 hours	3

Table 10—*Showing Complications in Labour and Puerperium in Accidental Haemorrhage*

Complication	No. of cases
a) Post-partum haemorrhage	12
b) Shock (moderate and severe degree)	25
c) Retained placenta	4
d) Hypofibrinogenaemia	3
e) Oliguria	2
f) Subinvolution	10
g) Puerperal sepsis	12

Table 11—*Showing Maternal Mortality Rate in Accidental Haemorrhage*

Authors	Mortality rate (per cent)
Crichton (1950)	4.4
Bysshe (1951)	0.39
Douglas *et al.* (1955)	1.25
Present series (1971-72)	2.6

Table 12—*Showing Maternal and Foetal Deaths in Relation to Types of Accidental Haemorrhage*

Type	No. of cases	Maternal death	Foetal death
Revealed	8	0	0
Mixed	52	1 (Atonic PPH)	26 (50%)
Concealed	16	1 (Shock and anuria)	14 (87.5%)
Total	76	2	40

From Tables 11 and 12 it is evident that despite the downward trend of the gross maternal mortality rate, the overall result in accidental haemorrhage has not improved much. And this is in spite of the fact that this period saw the better antenatal care, advent of antibiotics, safe blood transfusion service and liberal use of caesarean section in accidental haemorrhage.

Table 13 shows the gross foetal mortality in the present series. In contrast to placenta praevia, most of the losses are due to stillbirths. However, there has been a steady decrease on stillbirth rate in recent years—from

Table 13—*Showing Foetal Outcome in 76 Cases of Accidental Haemorrhage*

Foetal outcome		No. of cases	Per cent
Live birth		36	47.4
Stillbirth		23	30.2
Neonatal death		17	22.4
Perinatal death		40	52.6
Of 17 neonatal death:			
Prematurity.	10		
Asphyxia	5		
Shock and anaemia due to haemorrhage	2		

60 per cent in 1932 to 20 per cent in 1954 (Feeney, 1955). But in concealed haemorrhage, the foetal loss is still high (Crichton, *loc. cit.*—100 per cent; Browne, *loc. cit.*—75 per cent).

DISCUSSION

Of the two main varieties of accidental haemorrhage or abruptio placentae, namely mild or revealed and severe or concealed accidental haemorrhage, purely revealed type is a comparatively trivial one and is not usually associated with any coagulation disorder. But in concealed accidental haemorrhage the incidence of which is 39 per cent of all cases of accidental haemorrhage (Kotsals, 1958), coagulation disorder is a major problem producing widespread haemorrhage, afibrinogenaemia, shock out of all proportion to the degree of internal haemorrhage and anuria. Concealed accidental haemorrhage associated with coagulation failure may entail a maternal mortality of 5 to 10 per cent and a foetal mortality of almost 100 per cent. Haemorrhage is not only restricted to the retroplacental site but occurs in the uterine muscle typically described as "Couvelaire uterus" (Couvelaire, 1912), between the layers of the broad ligaments, in the peritoneal cavity, suprarenals, stomach and sometimes even from gums and in the subcutaneous tissue. Basu (1972) reports that approximately 25 per cent of patients suffering from coagulation failure in abruptio placentae suffer from post-partum haemorrhage in the absence of laceration and in the presence of an atonic uterus. De Lee (*loc. cit.*) first reported a case of abruptio placentae in which there was failure of coagulability of blood which was further corroborated by Schneider (1952).

The level of fibrinogen in the blood of normal pregnant woman at term ranges between 350 mg. and 500 mg. per cent. According to Nilsen (1963) the critical level is between 70 mg. and 100 mg. per cent, when uncontrollable uterine haemorrhage may occur due to failure of coagulability of blood. So, in the management of concealed accidental haemorrhage, observation of the alteration in blood coagulability and fibrinogen level is essential.

Reid (1967) suggests that fibrinolytic enzyme is responsible for the depletion of fibronogen with defective coagulation, in addition to causing lysis of formed fibrin. Coagulation failure and haemorrhage associated with afibrinogenaemia are the end results, should be controlled and life can be saved by adequate replacement of human fibrinogen.

Basu (*loc. cit.*) postulated that intravascular coagulation is associated with hypofibrinogenaemia, thrombocytopenia and the appearance of soluble fibrin monomer/fibrin degeneration product (FDP) complexes in the form of 'cryofibrinogen'. Fibrinolytic activity secondary to intravascular coagulation gives rise to high concentration of FDP in the blood and may thus lead to the production of an antithrombin effect in the plasma.

Basu and Jeffcoate (1970) observed that hypofibrinogenaemia complicating abruptio placentae predisposes to post-partum haemorrhage provided there is development of uterine atony after the delivery. In 13 out of 32 cases of severe degree of abruptio placentae, considerably higher fibronolytic activity and higher concentrations of fibrin degeneration products (FDP) were detected in the uterine venous blood than in the arterial and peripheral venous blood. The former group suffered from atonic post-partum haemorrhage showing direct association of higher concentration of FDP in the serum and possibly indirect relationship with lowering of the circulating fibrinogen level. Clarke and Cliffton (1962) opined that tissue trauma might stimulate fibrinolytic activity producing higher serum level of FDP. The latter may be responsible for atony of the uterine musculature giving rise to post-partum haemorrhage. According to Basu and Jeffcoate (*loc. cit.*), increased local fibrinolytic activity in the pregnant uterus may be responsible for both post-partum haemorrhage and high level of FDP.

Coagulation failure is a preventable complication in abruptio placentae provided the pregnant women receive intensive prenatal supervision and the condition is detected and adequately treated at a very early stage. Hypertensive and toxaemic patients of all ages and parities are most susceptible to accidental haemorrhage. Improvement in the standard of antenatal care is essential to prevent this serious complication of pregnancy. It is not the frequency of antenatal visits that counts but the quality of supervision that matters. In a severe case of abruptio placentae complicated by coagulation failure four vital factors must be looked for: (i) Haemorrhage must be stopped, ii) shock and anuria must be overcome, iii) fibrinopenia must be prevented and treated, and iv) the uterus must be emptied within 6 hours, after the diagnosis is made by relevant investigations.

Intramuscular injection of morphine gr. ¼ should be given immediately on admission for pain and other measures should be taken to overcome shock. With abruptio placentae at least 1 litre grouped and cross-matched blood should be at hand and sometimes massive (5-6 litres) blood transfusion may be required to provide fibrinogen, to alleviate shock and to counteract any pre-existing anaemia. The transfusion must be rapid so that normal blood pressure is re-established and renal blood flow is restored. Massive fresh blood transfusion is specially indicated when there is no arrangement of direct fibrinogen transfusion in cases where hypofibrinogenaemia or afibrinogenaemia has developed. One pint of blood transfusion increases fibrinogen by 10 to 15 mg. per cent. If fibrinogen is available, 2 to 10 g. of fibrinogen transfusion may have to be given in hypofibrinogenaemia cases although Basu (*loc. cit.*) is not in favour of administering specific therapeutic measures to correct the coagulation defect either before or following delivery unless post-partum haemorrhage occurs. Plasma in quadruple strength may be transfused in place of fibrinogen; (1 bottle of plasma being equivalent to 1.1 g. of fibronogen). Indiscriminate use of blood and plasma in such cases, however, may give rise to lower nephron nephrosis, particularly in women with shock and toxaemia. There is also grave danger of hepatitis. Administration of anticoagulants, such as heparin, or drugs currently available for inhibition of fibrinolysis and production of FDP such as plasmin or the activator is not justified (Verstrate and Vermylen, 1968).

According to Weiner *et al.* (1953), as the time factor is very important the membranes must be ruptured whenever the patient is admitted to reduce intra-amniotic and retroplacental tension, to retard further uterine stretching and thereby diminishing the risk of uterorenal reflex, possibility of anuria, liberation of thromboplastin and development of afibrinogenaemia. It converts the spherical conceptus into a more cylindrical form and it stimulates uterine contractions and helps in early emptying of the uterus. To hasten the delivery further, 5 units of oxytocin in 500 ml. of 5 per cent dextrose may be given intravenously provided there is no contra-indication for the same. Caesarean section is justified if the above method does not lead to delivery within 6 hours specially when the abruptio is associated with severe toxaemia, when external or internal haemorrhage is profuse and when the cervix is not dilated at all or only slightly dilated.

Gibbard (1948), on the other hand, strongly advocates conservative treatment with injection of morphine and avoidance of manipulations which only aggravates shock and blood loss. The membranes, according to this school, should not be ruptured while the uterus is tense—since this only allows blood to take the place of the escaped liquor amnii without helping in improving uterine contraction and relaxation. Routine administration of oxytocin drip after artificial rupture of membranes is also resisted by another school as that may cause further separation of placenta due to incoordinate uterine action causing more haemorrhage and further loss of fibrinogen content, aggravation of renal vasospasm, increased expression of noxious substances from the placental site to the maternal circulation causing further shock and rupture of the uterus specially in multiparous women. But by judicious use of oxytocin drip following prompt rupturing of membranes, more lives can be saved in severe type of abruptio placentae than bringing in rare complications as mentioned above.

Caesarean hysterectomy is rarely performed nowadays. Even in "Couvelaire uterus" it is not necessary as the uterus generally contracts after delivery of the baby particularly if coagulation defect is controlled. If it is not, then even hysterectomy can not cure the condition; moreover, bleeding occurs even from the abdominal wound.

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2

An Experimental Study on the Treatment of Enlarged Prostate

S. N. SANYAL*

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For aging males, especially for those above fifty, prostatic enlargement is a common and growing hazard. The hypertrophy of the gland (benign prostatic hyperplasia) is always associated with troubles in passing urine and in some cases it leads to complete stoppage of urine requiring immediate medical treatment or surgical interference. Medical treatment is often only palliative and that even in the early stage; surgical interference such as suprapubic cystostomy or removal of prostate often becomes necessary. The concensus, as remarked by Anderson (1966), is that at about the age of 50 there is decrease in androgens with proportionate increase in oestrogen. The disbalance is sufficient to stimulate hyperplasia in the inner mass of the prostate gland.

Medical treatment consists mainly of androgens to counterbalance the effect of oestrogen which is responsible for the stimulation and induction of hyperplasia of the inner mass of the median lobe and the central mass of the lateral lobes. Unfortunately, this incorporates a hazard of stimulating any cancerous growth which might be found in some 10 per cent of such cases of enlarged prostate (Evans, 1968).

MATERIAL AND METHOD

To obviate such hazard of hormone treatment in the case of hyperplasia of the prostate gland, research was undertaken in the laboratory and it was found that removal of zinc might bring about degeneration of the epithelium of the prostate gland. In our previous communications (Sanyal, 1964; Sanyal *et al.*, 1965) it was described that syringic acid (2 : 6 dimethoxy parahydroxy benzoic acid) can remove zinc from the testis, prostate and seminal vesicle. Removal of zinc caused irreversible degeneration of the seminiferous tubules of the testis. This was aimed at for the permanent sterilisation of the male by an oral pill and not by surgical operataion. The compound is almost non-toxic. While proceeding with such experiments, prostate and seminal vesicles were found to have undergone similar degenerative changes but in that case it was found reversible with the administration of androgen or chorionic gonadotrophin or supplementation of zinc. Further work was continued for determining its effect in cases of hyperplasia of the prostate.

In the biological study, old male rats were selected and weighed. The mean weight of the control group of 12 rats was 192 g. and that of the treatment group of 12 was 191 g. Old rats were selected with the idea that there might be some degree of hyperplasia in the prostate gland. The control group of rats were left out and the treatment group of rats were injected for six consecutive days with 0.5 ml. of a solution of sodium salt of syringic acid (20 mg. per ml.). Syringic acid is insoluble in water but its sodium salt is highly soluble. After a day of rest, on the 8th day all the rats, both of the control group and the treatment group were autopsied and their prostates were removed and fixed in Bouin solution; microsections were made and slides were prepared as usual and examined under microscope.

In the chemical study (Sanyal *et al., loc. cit.*) the remaining portions of the prostate glands (after removal of a portion from each specimen for microsection) of both the control group and the treatment group were washed in running water, dried on filter paper and finally dried at 60°C for one hour. These dried specimens were weighed, placed in crucibles and heated in a muffle furnace at below 500°C (Sandel, 1959). The ash was digested with hot dilute HCl. The extracts were treated with dithione. The colour developed was extracted with carbontetrachloride and transferred into the matching tubes and the colours were compared against a standard. The density of absorption was also determined accurately with the help of UV spectrophotometer

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(Helige autowriting UV spectrophotometer). The results were tabulated to represent the amount of zinc per 100 mg. of dried tissue (Table 1).

Table 1—*Showing the Results of Chemical Analysis Indicating the Amount of Zinc in Control and Treatment Groups*

No.	Weight of sample (mg.)	Amount of zinc (μg.)	Quantity of zinc per 100 mg. of sample (μg.)
		Control group	
1	52.30	25	47 8
2	39.01	25	64.8
3	58.92	37.5	63.6
4	50.93	9.4	18.4
5	29.26	5.0	17.8
6	24.38	2.5	10.2
7	25.90	31.25	Lost
8	29.81	5.0	16.7
9	21.78	2.0	9.1
10	68.56	10.0	14.5
11	157.88	47.75	27.7
12	88.22	12.5	14.1
			304 7
		Treatment group	
1	64.51	12 50	19.3
2	60.36	12.50	20.5
3	41.04	3.75	9.1
4	51.43	5.0	9.7
5	39.34	3.75	9.5
6	53.68	10.0	18.6
7	95.73	12.5	13.05
8	85.40	15.0	17.5
9	66.75	10.0	14.9
10	78.23	18.75	23.9
11	148.2	31.25	21.08
12	104.06	18.75	17.9
			195.03

$\bar{C}$ (Statistical mean for control group) = 304.7/11 = 27.7 ± 19.9

$\bar{T}$ (Statistical mean for treatment group) - 195.03/12 = 16.25 ± 5.57

t (treatment variance) = 1.94 ("t" here in this case represents significance at 8.3 per cent.)

$\overset{+-}{C}$ (Statistical mean error for control group) - 19.9

$\overset{+}{T}$ (Statistical mean error for treatment group) - 5.57

It might be mentioned here that while working with small samples, significance is allowed up to 10 per cent level.

OBSERVATIONS

Histological—Regarding the biological study. the microsections of the control group showed enlarged acini of the glands with increased number of the epithelial lining cells and villous like projections into the acini (Fig. 1, H. & E. × 80). The fibromuscular stroma also appeared hyperplastic. The picture in the treated group represented a completely reversed appearance. The fibromuscular stroma appears thinned out, sometimes loosing its identity; the epithelium lining the acini are almost eroded out leaving only the lining membrane (Fig. 2. H. & E. × 80).

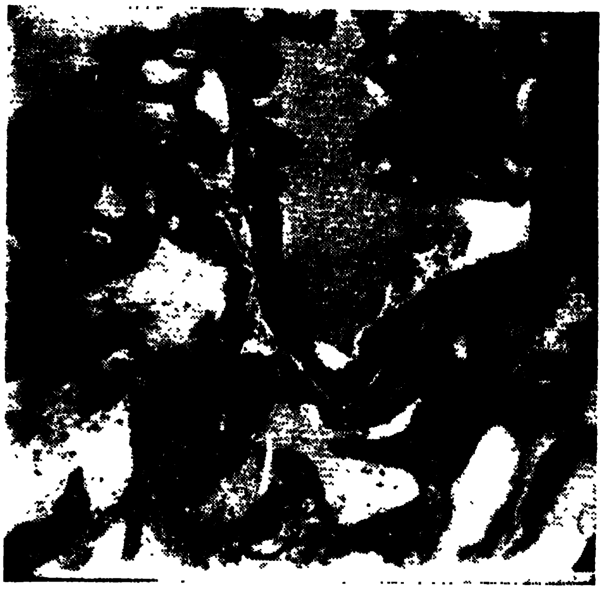

Fig. 1—Showing Microsection of Prostate in Control Group with Enlarged Acini of the Gland with Dense Epithelial Lining and Villous Projection

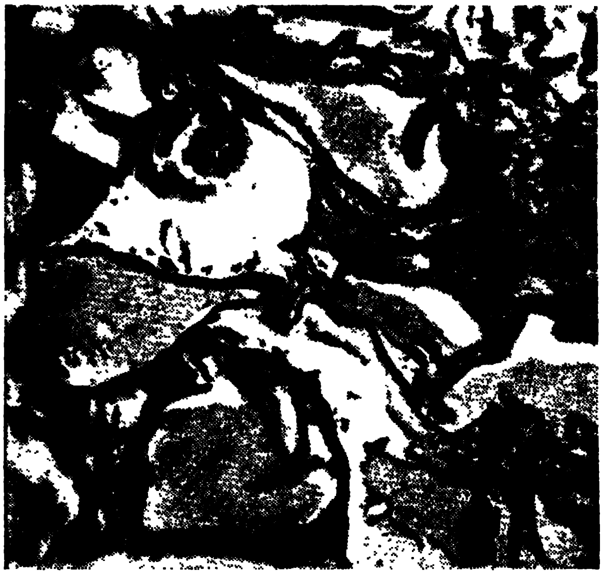

Fig. 2—Showing Microsection of Prostate in Treated Group with Epithelial Lining Eroded out, Fibromuscular Stroma Thinned out Loosing Its Identity in Some Places

Chemical—Regarding the chemical study, the tabulated results of chemical analysis are presented in Table 1.

DISCUSSION

Syringic acid is capable of removing zinc from the system even from the protein or enzyme complex. It can combine with varieties of metals like that of EDTA. Its toxicity is negligible. Syringic acid removes the metal by the formation of a co-ordinated compound whereas EDTA by chelation (Goodman and Gillman, 1955).

The importance of the role of zinc as a trace element in the metabolism of many tissues has been recognised only recently. The rationality of the treatment of hyperplasia of the prostate gland might be fully justified from the following observations of previous workers in the field. The enzymatic activity of the tissues of zinc deficient rats is significantly reduced, the intestinal and blood phosphatase and carbonic anhydrase and hepatic and renal catalase being primarily affected (Hove *et al.*, 1937). Rats fed on a diet low in zinc content soon exhibit characteristic deficiency syndrome manifested by retardation of growth, impairment of nutrition and development of alopecia (Tood and Elvehjem, 1934 ; Day and McCallum, 1940). Transport and metabolism of zinc has been studied with the help of radio isotope zinc (Sheline *et al.*, 1943). When introduced into the body, it rapidly leaves the plasma, appearing only in the red cell and is rapidly taken up by the liver, pancreas, kidney and the pituitary but not fixed in these tissues. Carbonic anhydrase was described as the first metallo-protein and metallo-enzyme containing zinc (Keilin and Mann, 1940). Carbonic anhydrase, carboxy peptidase and alcohol dehydrogenase have also been proved to contain this element as metallo-enzyme complex (Velee, 1955). Seminal fluid and spermatozoa contain a large amount of zinc (Bertrand and Vladesco, 1923).

SUMMARY AND CONCLUSION

From the aforesaid evidence in the literature as also from the results of both biological and chemical experiments, it seems reasonable to surmise that if zinc is eliminated from the enzymatic complex in the prostate which contains a large amount of zinc, degeneration of the gland might be brought about. Degeneration of the gland is evidenced in the biological experimental results and diminution of zinc content is corroborated in the results of chemical analysis.

ACKNOWLEDGEMENT

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PRACTITIONERS' SERIES

Diethylcarbamazine Citrate in Bronchial Asthma

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M. G. M. ZACHARIAH****

The effect of diethylcarbamazine citrate (DEC) in tropical eosinophilia is well known (Dhanraj, 1958 ; Samuel, 1968). Lately, there have been reports of the use of DEC in subjects with bronchial asthma with favourable results (Mallen, 1965 ; Orange *et al.*, 1968 ; Antony and Srinivas, 1972). This drug seems to inhibit the

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release of SRS-A (slow reacting substance) in anaphylaxis (Orange *et al., loc. cit.*; Jawetz *et al.*, 1970). Howeveer, Benner and Lowell (1970) failed to observe any difference between the DEC and placebo in a double blind study. The present study was undertaken to assess the use of DEC in bronchial asthma in a controlled clinical trial.

MATERIAL AND METHOD

The following clinical criteria were employed in the selection of the subjects: Bronchial asthma of at least 2 years' duration, with or without respiratory infection and reversible airways obstruction with at least 20 per cent improvement of maximum breathing capacity (MBC) and of the vital capacity (VC) after 1 per cent isoprenaline inhalation for one minute; the subjects, who had perennial asthma were in a state of persistent or continued bronchospasm with exacerbations, throughout the preliminary period of observation, and subjects with occupational risk of dust exposure were not admitted.

The allocation to the DEC therapy and to the control (dummy) was on the basis of random selection. Of the 25 patients on DEC, 10 (40 per cent) were aged more than 30 years, compared with 18 (72 per cent) of the 25 patients on the dummy. The mean age of the dummy group was 36.4 years, and of the DEC group, 29 years. Thirteen (52 per cent) of the DEC group and 15 (60 per cent) of the dummy group were males.

Preliminary examination of all the subjects of the study included detailed history on the basis of standard questionnaire, routine haematological, ventilatory function tests using the Poulton spirometer for MBC and for VC, and stool examination for helminthic infestation. Endermic tests with appropriate allergenic extracts were also carried out. The MBC and VC estimations were made daily at the same time of the day, for 5 days before the commencement of the treatment.

Subjects with bronchial infection were given appropriate antibacterial therapy before inclusion in the trial and at the time of commencement of the study, they continued to have reversible airways obstructions. The number of such subjects were also found to be equally distributed in two groups.

The duration of therapy with DEC was 20 days. The out-patient and in-patient groups were separately allocated to DEC or dummy group. Thirty-two patients were treated as in-patients and 18 patients as out-patients. Diethylcarbamazine citrate was given in dosage of 10 mg./kg. body weight in 3 divided doses for first 10 days and 5 mg./kg. body weight in 3 divided doses for succeeding 10 days. The same dosage schedule was adopted with dummy tablets. The dummy tablets were lactose and were similar in size, shape and colour to those of DEC tablets. The patients were unaware of the nature of the tablet they received. The dummy tablets and the DEC tablets did not have the same taste and the patients were therefore asked to swallow the tablets and not to chew them.

The total count and differential counts were determined on alternate days during the course of the treatment period and every week during the follow-up period; MBC and VC were done twice daily at the same time of the day.

Changes in the subjective state of the patients and clinical signs of airways obstruction were noted twice daily and recorded. The assessing physician was unaware of the treatment the individual patient was receiving. The observations were continued daily for 5 days after treatment period and thereafter, once a week for 3 months. The results were assessed on the basis of changes in symptoms, cough, sputum, dyspnoea and in the signs, on clinical examination, of airways obstructions. Clinical grading of the severity of the airways obstruction was adopted on the following basis: The airways obstruction was adjudged as severe if there was audible wheeze even without auscultation, moderately intense if rhonchi were both inspiratory and expiratory, mild if only expiratory and minimal if brought out only during forced expiration. Supplementary treatment included administration of aminophylline intravenously or adrenaline subcutaneously, if necessary, during the period of study. This was noted in the case record on the subject.

RESULTS

The overall changes in symptoms and signs as improvement, no change or deterioration were declared by the assessing physician on the basis of the serial evaluation throughout the trial and during the follow-up period.

During the 1st month, which includes the initial 20 days of therapy, 18 patients out of 24 (75 per cent) of DEC group showed subjective improvement in regard to cough, sputum, and breathlessness as against 9 out of 24 (38 per cent) in the dummy group, the difference between two groups being significant ($P = 0.02$). Further, none in the DEC group and 7 out of 24 (29 per cent) among patients in the dummy showed deterioration and this is also statistically significant ($P=0.01$). On analysis, there was lack of correlation between the age, sex or the initial lung function before treatment and the final lung function after treatment in both the DEC and dummy groups.

In the second month, 16 out of 19 subjects follow up (84 per cent) of the DEC group continued to show subjective improvement when compared with 6 out of 16 (38 per cent) of the dummy group (P=0.01). In the DEC group, one subject showed deterioration as against 4 in the dummy group.

During the 1st month, 17 patients out of 24 (71 per cent) of DEC group had objective improvement in respect of signs of airways obstruction as against 9 out of 24 (37.5 per cent) in the dummy group, the difference being significant (P=0.04). Deterioration occurred in none of the DEC group whereas 6 of the dummy group (25 per cent), showed deterioration of airways obstruction. This is also significant (P=.02).

During the 2nd month, 14 out of 19 (about 74 per cent) among the DEC group continued to show objective improvement as against 6 of 16 (about 38 per cent) of the dummy group, the difference being suggestive but not statistically significant.

Further assessment of the clinical course in the third month was not attempted since the number of subjects followed up after the second month was inadequate for statistical evaluation.

Vital capacity and maximum breathing capacity—Table 1 shows the mean vital capacity increase in all patients in DEC was 0.24 and in the dummy group 0.06 litre. Mean increase in maximum breathing capacity in all patients on DEC was 4.0 litres per minute and on the dummy 1.9 litres per minute.

The mean increase in vital capacity in in-patients on DEC was 0.19 litre while that of the dummy group was 0.04 litre. Mean maximum breathing capacity increase in in-patients on DEC was 3.1 litres per minute and that in the dummy group was 2.9 litres.

In the out-patient series, the mean vital capacity increase on DEC was 0.32 and on the dummy 0.08. The mean increase of maximum breathing capacity in out-patients in DEC group was 5.6 litres per minute and in the dummy group was a decrease of 0.1 litre per minute which is statistically significant.

The differences in respect of the changes in the MBC and VC in the out-patient and in-patient group and on all patients of the two treatments were however not significant, except the increase of MBC in out-patient group on DEC.

There was no difference in the behaviour of the out patient and in-patient groups regarding subjective and objective analysis in each of the two groups.

DISCUSSION AND CONCLUSION

Diethylcarbamazine citrate (DEC) has been shown to be effective in tropical eosinophilia (Dhanraj, *loc. cit.*; Samuel, *loc. cit.*). In this study, a double blind clinical trial has shown that DEC is effective in the symptomatic relief of bronchial asthma and its effect lasts at least for one month. This is in contrast to the observations of Benner and Lowell (*loc. cit.*) who, in a double blind clinical trial, failed to show effectiveness of DEC in bronchial asthma. No significant side effects were encountered in the course of the study either in the DEC group or in the dummy group.

Physical signs of airways obstruction also showed a significant reduction in the DEC group compared to the group on the dummy. But the MBC and VC of the subjects on DEC, out-patient and in-patient taken together, did not register a statistically significant improvement compared with the measurements in the control (dummy) group. Such an experience of the objective tests of lung function not showing an improvement commensurate with clinical im-

Table 1—*Showing Summary of Lung Function Test Results*

Group	Treatment	No. of patients	Mean maximum breathing capacity in litres/minute			Mean vital capacity in litres		
			*Before treatment	†After treatment	Increase	*Before treatment	†After treatment	Increase
In-patients	DEC	15	47.7	50.8	3.1	1.59	1.78	0.19
	Dummy	15	33.7	36.6	2.9	1.36	1.40	0.04
Out-patients	DEC	9	58.5	64.1	5.6	1.81	2.13	0.32
	Dummy	9	36.6	36.5	−0.1	1.40	1.48	0.08
All patients	DEC	24	51.8	55.8	4.0	1.67	1.91	0.24
	Dummy	23	34.7	36.6	1.9	1.37	1.43	0.06

*Taking the average of 10 readings for each patient, 2 on each of the 5 days preceding the start of the study.

†Taking the average of 10 readings for each patient, 2 on each of the 5 days following the completion of the course of treatment.

provement on a particular form of therapy is not unknown in asthma. Besides, the MBC is a crude index of airways obstruction and cannot assess alteration in the state of the peripheral airways, for which the closing volume of the lungs has to be measured.

Since DEC is economical, it may be of use in symptomatic relief of intractable bronchial asthma and it could be a worthwhile addition to the armamentarium of drugs used in this disorder, if not entirely capable by itself of giving total symptom relief.

SUMMARY

A double blind clinical trial was conducted in 50 patients with intractable bronchial asthma. Of these, 25 received diethylcarbamazine citrate (DEC) for 20 days and the rest received a dummy of identical appearance, the subjects being included in the two groups on the basis of random selection. Improvement, based on subjective and objective findings, occurred in significantly greater number of patients in the DEC group than in the dummy group. However, the results of ventilatory function tests did not show any advantage for the DEC group. Side effects of DEC were not significant.

ACKNOWLEDGMENT

Our grateful thanks are due to Dr. S. Radhakrishnan, Assistant Director, Tuberculosis Chemotherapy Centre, Madras for the advice in the design and statistical analysis of the study, to Dr. T. S. Ramachandran, Senior House Physician for his help. Our grateful thanks are also due to the Dean, Government Stanley Hospital and the Director of Medical Education of Tamil Nadu for the kind permission to conduct the trial.

Our grateful thanks are due to Messrs. Cyanamid Limited (Lederle Division) for their generous supply of Hetrazan brand of diethylcarbamazine citrate and the dummy tablets for the trial.

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CASE NOTES

1

Dermatitis Herpetiformis (Duhring's Disease) with Autoimmune Haemolytic Anaemia

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Dermatitis herpetiformis (Duhring's disease) is a chronic skin disease characterised by intense pruritus, development of groups of polymorphic cutaneous eruptions e.g., erythematous, papulovesicular, vesicular and bullous lesions which leave hyperpigmented spots and rarely scars. Wheals are also often found with them. The lesions are symmetrical and have predilection for sacral regions, axillary folds, buttocks, etc., when it becomes difficult to differentiate it from scabies. Therapeutic use of sulphonamides is found of value in such a case. Adult males are more affected. Mucous membrane lesions are rare and general health is never affected. High eosinophil content of blister fluid, subepidermal bulla with eosinophils on histology and sensitivity to iodides are characteristics of the disease. A mild degree of anaemia may be present. Brief account of such a case is reported below.

CASE REPORT

D.D., a multipara of 33 years, was admitted in the hospital with the complaints of itchy, papulovesicular and bullous eruptions all over the body of six months duration and irregular bowel troubles e.g., acidity, irregular loose motions, pain abodmen, etc. On a detailed history it was revealed that she noticed development of grouped itchy papular and papulovesicular lesions on the body periodically along with sore throat and malaise since last one year. The eruptions became vesicular, then bullous and ulcerated. She was advised to take some tablets per day by a dermatologist in a hospital of Calcutta, but without any effect. After a period of two months, she found some benefit by homoeopathic treatment while she was admitted in such a hospital. The eruptions used to recur and finally she was admitted to this hospital. In the past, she gave no history of severe illness except weakness and menstrual irregularities, for which she consulted gynaecologists from time to time. Obstetric history revealed abortions at 1st, 3rd, and 5th pregnancies but 2nd, 4th and 6th issues are living and healthy. General examination

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**M.B., D.T.M., D.Phil., Officer-in-Charge revealed nothing abnormal except anaemia and splenomegaly.

Investigations—On admission routine blood count: Haemoglobin—5.22 g. per cent, WBC—12,600/c.mm. with neutrophils—48 per cent, lymphocytes—22 per cent, monocytes—2 per cent, eosinophils—28 per cent. Blister fluid count: Nucleated cells—3200/c.mm. with neutrophils—36 per cent, lymphocytes—4 per cent, eosinophils—60 per cent, Urine—NAD. Stool—undigested vegetable particles. Gastric analysis—mild hyperchlorhydria; stool fat content for 24 hours—2 g.; serum protein—total protein—6.8 g. per cent, albumin—2.3 g. per cent, globulin—4.5 g. per cent; blood chemistry and other liver function tests were within normal limits but serum bilirubin was 2 mg. per cent. X-ray chest—NAD. Patch test with 20 per cent potassium iodide—positive; histological examination of skin was confirmatory of dermatitis herpetiformis, subepidermal bulla with eosinophils (Fig. 1, H. & E. × 160). ECG—normal; throat swab culture—no pathogenic bacteria.

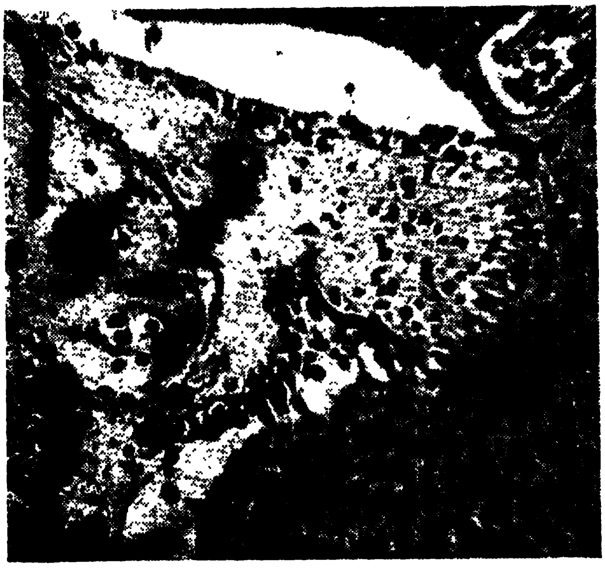

Fig. 1—Showing Eosinophils and Polymorphonuclear Cells in the Bulla in the Subepidermal Zone

Management—Anaemia did not improve clinically with haematinics e.g., ferrous sulphate and folic acid within a period of 2 weeks. As the condition was distressing and skin eruptions were also increasing, sulphone (100 mg. daily) was introduced along with the above drugs. There was no improvement of the ailments within a fortnight, so the drug was replaced by oral sulpha drug (3 g. daily). Having no appreciable relief, a small dose of prednisolone (10 mg.) was added along with the drug and haematinics were stopped. On the next night, she got an attack of dyspnoea and weakness which was relieved by 1 ml. dexamethasone injection and oxygen inhalation. All the drugs were stopped but prednisolone was continued. A fresh blood examination after 5 days of the above episode, steroid therapy showed slight improvement of haemoglobin (6.67 g. per cent) and decrease of eosinophil count (8 per cent). After a week, a fresh examination of blood revealed haemoglobin—8.12 g. per cent, WBC—6,600/c.mm. with neutrophils—58 per cent, lymphocytes—25 per cent, monocytes—8 per cent, eosinophils—8 per cent, basophils—1 per cent, ESR—63 mm., PCV—29 per cent, reticulocytes—7 per cent, platelets—3,77,000/c.mm. and RBC showed hypochromia, anisocytosis, poikilocytosis, and Coombs' test (direct) was positive. Heinz bodies were absent. The dose of prednisolone was increased to 30 mg. per day along with an antacid. The patient improved considerably, the skin lesions improved, bowel became regular and a sense of well being was noted. Blood examination after a week, revealed haemoglobin—8.7 g. per cent, WBC—5900/c.mm. with neutrophils—71 per cent, lymphocytes—18 per cent, monocytes—11 per cent, eosinophils—0 per cent, basophils—0 per cent, reticulocytes—7 per cent, PCV—30 per cent, platelets—3,30,000/c.mm., ESR—55 mm. No Heinz body was detected. The patient was discharged subsequently with advice to continue prednisolone 15 mg. daily along with antacid and to report periodically.

Follow-up—There was a steady improvement of the clinical condition and there was no fresh eruptions within last four months. Complete haemogram after two months of discharge shows haemoglobin—11.02 g. per cent. WBC—6100/c.mm. with neutrophils—62 per cent, lymphocytes—31 per cent, monocytes—4 per cent, eosinophils—3 per cent. PCV—36 per cent, platelets—54,000/c.mm.; RBC showed anisocytosis and hypochromia. Recent blood picture revealed haemoglobin—11.89 g. per cent, WBC—10,200/c.mm., PCV—39 per cent, neutrophils—80 per cent, lymphocytes—15 per cent, monocytes—4 per cent, eosinophils—1 per cent, platelets—adequate; RBC—slight anisocytosis, and reticulocytes—8 per cent.

Examination of the patient, 4 months later, revealed the following results:

Postprandial blood sugar (2 hours after 50 g. of glucose)—129 mg. per cent.

Haemoglobin—13.72 g. per cent, reticulocyte count—2.8 per cent.

The patient is maintaining good health with 5 mg. of prednisolone (the dose gradually reduced to 5 mg. daily now) and no fresh eruptions on skin has been observed. The bowel movement is also regular.

DISCUSSION AND COMMENTS

Dermatitis herpetiformis is a rare disease and the incidence reported by Banerjee and Sur Roy Chowdhury (1969) to be 0.01 per cent. Although various aetiologies have been suggested for it but no definite cause has yet been proved.

Enteropathy is often associated with the disease Glutenfree diet is found helpful in the treatment and gluten sensitivity has been suggested by Fry *et al.* (1969) and Marks and Shuster (1970). This associated enteropathy is of coeliac syndrome in nature as observed by Shuster *et al.* (1968).

Immunofluorescent antibody study by Dick *et al.* (1969) showed positive results for fixed γ-globulin in basement membrane zone of jejunal mucosa in contrast to normal jejunal mucosa. Immunoglobulins were found in the basement membrane of skin lesions in dermatitis herpetiformis. Granular pattern of immunofluorescent staining was found in the uninvolved skin of the cases. Concomittant *in vivo* binding of Ig and complement was present in the basement membrane of skin of patients with dermatitis herpetiformis, as reported by Van Der Meer (1969). Anaemia in this disease is normocytic in type. The specific therapy is dapsone (sulphone) or sulpha (Domonkos, 1971), steroid is of little value even in high doses (Evans and Fraser, 1963; Rook *et al.*, 1969).

Haemolysis caused by dapsone may be due to autoimmune mechanism which is very difficult to elicit in the laboratory. Drug induced anaemia in confined to self limited acute haemolytic anaemia with presence of Heinz bodies in RBC which is related to glucose-6-phosphate dehydrogenase deficiency in a particular genetically determined subject.

The present case of dermatitis herpetiformis is being confirmed clinically by eosinophilia in blister fluid, positive iodide test and histologically. But the specific therapy by sulphone or sulpha failed. The condition improved, both clinically and haematologically by steroid therapy. Other haematinics could not improve the blood picture. Later on, a repeat blood examination revealed haemoglobin—8.12 g. per cent, reticulocytes—7 per cent, positive Coombs' test and raised ESR. Subsequently, it was proved that only steroid therapy helped the patient's general condition, bowel became regular, anaemia steadily improved and no fresh eruptions appeared. Splenomegaly, anaemia, reticulocytosis, positive Coombs' test, increased serum bilirubin, etc., are suggestive of autoimmune haemolytic anaemia which was more or less confirmed when steroid only improved the haemogram. Drug induced anaemia can be excluded on the haematological findings before specific therapy with sulphone or sulpha, and afterwards and follow-up study. Routine blood examination report at the onset may be due to unawareness of the condition e.g., haemolytic anaemia.

The question of dermatitis herpetiformis in a case of autoimmune haemolytic anaemia may be a coincidental event only, if not a part and parcel of the same diseased process. The steady improvement of health, absence of skin eruptions, improved blood picture with only steroid therapy without the specific medicines for dermatitis herpetiformis etc., the probability remains to be of same cause, i.e., autoimmune disorder. It could have been helpful to study the jejunal mucosa and skin lesions by immunofluorescent method to arrive at a definite diagnosis, the scope of which is limited. The patient is being kept under close watch in the follow-up study for development of any new associated ailments.

SUMMARY

A case of dermatitis herpetiformis (Duhring's disease) with autoimmune haemolytic anaemia is presented. Although a single case is reported here but still it is of significance to dermatologists and one should keep an open eye to investigate all the cases of dermatitis herpetiformis with anaemia, not responding to the specific drugs, and to find out the cause of anaemia. Whether autoimmune process is also the cause of dermatitis herpetiformis in cases with refractory anaemia, should be studied properly.

ACKNOWLEDGMENT

We are thankful to Director of the Institution for permitting us to report the case.

Decadron (Merck Sharpe & Dohme) brand of dexamethasone sodium phosphate was used.

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2

Unusual Foreign Body Causing Haematuria

GURUDAS MUKHERJEE*

Leech has been known to the medical profession since the time of Hippocrates (460-377 B.C.) or even earlier. These invertebrates were clinically used to produce slow and progressive bleeding in case of headache, hypertension and various other ill defined disorders. It is well known that the leech has the habit of entering into anatomical orifices of man and animals. After entering into the cavities it behaves as a living foreign body with its added special character of sucking blood. It is also known that during the process of sucking, an anticoagulant substance, hirudin, is secreted from its salivary glands around the pharynx. When the leech releases its bite after satiation, site of the bite continues to bleed and will produce haemorrhagic manifestation.

Reports of leech in the pharynx (Turner, 1969), in the nasal cavity causing epistaxis (Levonian, 1950; De Dilva and Anderson, 1964; Keegan *et al.*, 1970; Verma and Kohli, 1970; Basu Chowdhury, 1971), haemoptysis (Basu Chowdhury, *loc. cit.*), haematemesis (Cameron, 1950), bleeding from vagina (Hamilton, 1933) and bleeding from rectum and anal canal are available. Even cases have been reported when the leech has gone into the male urethra (Ghosh, 1933).

CASE REPORTS

Case 1:

A 50-year-old male (T.M.), was admitted as an emergency on 18-8-1971 with the complaint that while he was working in a water-logged field in squating position he felt that something is entering through the external urinary meatus. He tried to catch it and noted it as a leech. But it slipped from his grip and disappeared into the urethra. About eight hours later, he was brought to our hospital, and said that since then he had retention of urine. A few drops of serous fluid dribbled out with straining. On examination, a suprapubic distension of the bladder was noted and on catheterisation, blood mixed with urine came out. There was no obstruction to the passage of the catheter, nor any blood clot was found in the urine.

Management—The patient was operated and bladder was opened suprapubically. A sucker nozzle was introduced to suck the blood from the cavity when a part of the leech stuck to the sucker and came out of the bladder cavity. Then the rest of the body of the leech was delivered out of the bladder. It was about 8 to 9 inches long with a diameter about ten times of the normal. The leech was till then alive and had sluggish movements. As soon as it was placed on a kidney dish it regurgitated a bulk of the sucked blood and started moving out of the kidney dish. A bleeding wound was noted on the trigone of the urinary bladder after removal of the blood from the cavity. So bladder was closed on a Malecot catheter along with a drain for the suprapubic space. He was given blood transfusion on 21-8-1971. On 3rd day, microscopic examination of urine revealed RBC in plenty. Urine became absolutely clear on 6th day. Malecot catheter was removed on 13th day.

Case 2:

A 26-year-old man (S.B.) was admitted as an emergency on 5-4-1972 with the complaint that a leech has entered into his urethra. He tried to squeeze it out and succeeded in the process. But since this incidence he was unable to pass urine. Here also, the urinary bladder was found to be distended and on catheterisation, urine mixed with blood came out. As the patient had difficulty in passing urine even after catheterisation, he was operated for a thorough examination of the bladder cavity, because it was suspected that the leech was still in the bladder.

Management—On opening the bladder, a big clot was found in the cavity but no leech was present. In this case a small wound was noted anterior to the internal urinary meatus. After removal of the clot, bladder opening was sutured around a Malecot catheter with a drain for suprapubic space. He was given blood transfusion on 7-4-1972. In this case the urine became clear on 2nd day. He was discharged from hospital on 17-4-1972.

DISCUSSION

From these two cases it is now obvious that haematuria in man may be produced from the injury in bladder caused by Indian cattle leech. The Indian cattle leech (Class: Hirudenia, Type-Hirudenaria) is usually about 4-6 inches long but may attain the size of 12-14 inches on maturation (Prosad, 1969). In the first case, cause of retention was the distended leech itself in the bladder whereas in the second case it was due to clot formation. Two problems are noted in this type of cases. First, how to diagnose the case apart from the history given by the patient. Secondly, its removal from bladder. Cystoscopic examination will not be helpful as a leech of such size will occupy the whole of the bladder cavity. So for diagnosis, patient's history and haematuria should be relied on. Regarding its

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removal, it has to be killed first before trying for its removal. Formalin solution or other chemicals which are found effective in killing a leech will be injurious to the bladder mucosa. So, for removal of the leech of such size it appears that operative method is the best possible solution.

SUMMARY

Two cases of haematuria from the wounds caused by leech in male urinary bladder are described.

Various other reports about the habits of the leech insinuation into different anatomical orifices are described with special reference to haemoptysis, epistaxis and bleeding per vagina, etc.

The possibility of such bleeding in diagnosis of haematuria is also emphasised.

Diagnosis and nature of treatment for such cases are discussed.

ACKNOWLEDGMENT

Thankful acknowledgment are being extended to the Superintendent, J. N. M. Hospital, Kalyani, West Bengal for his kind permission to use hospital records. My sincere thanks to Dr. G. K. Manna, Professor and Head of the Department of Zoology, University of Kalyani, West Bengal for his kind help in identification of the leech that has been removed. My thanks to Dr. S. Gupta, Anaesthetist for his co-operation in the operation.

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3

Parosteal Lipoma

(MRS.) ANSAR A. KHAN*, ABBAS ALI KHAN**
BABY MATHEW***

Periosteal or parosteal lipoma refers to a very occasional finding of a slowly enlarging, circumscribed, benign growth of lobulated fat, developing deep in the soft parts of an extremity in intimate contact with the periosteum of limb bone (Lichtenstein, 1959). As early as 1888, Power reported a case of lipoma growing beside a femur and used the term parosteal. Smith (1868), Bland-Sutton (1906), Richmond (1953), Fairbank (1953), Lichtenstein (*loc. cit.*) are the few authors who have contributed on this subject. The rarity of this condition has prompted us to report a case in which the tumour was found in the lower part of the left thigh.

CASE REPORT

Mr. R. S., 15 years, Hindu, male, was admitted to Orthopaedic Ward on 6-1-1971 with the complaints of swelling above the left knee for the last two years. The swelling was very small to begin with, and gradually increased in size with no associated symptoms. The whole episode was totally painfree. There was no history of injury.

Examination—On examination the swelling was localised on the anteromedial aspect of the left thigh, just above the knee. There was no rise of local temperature. It was soft and the skin over the swelling was free. The swelling was nonfluctuant, nontender and irreducible. The regional lymph nodes were not enlarged. The movements of the knee were full and painfree. No other swelling was seen anywhere.

Investigations—Routine urine and blood examinations were within normal limits. X-ray of the part showed no bony irregularity (Fig. 1). The biopsy from the swelling showed fibroconnective tissue.

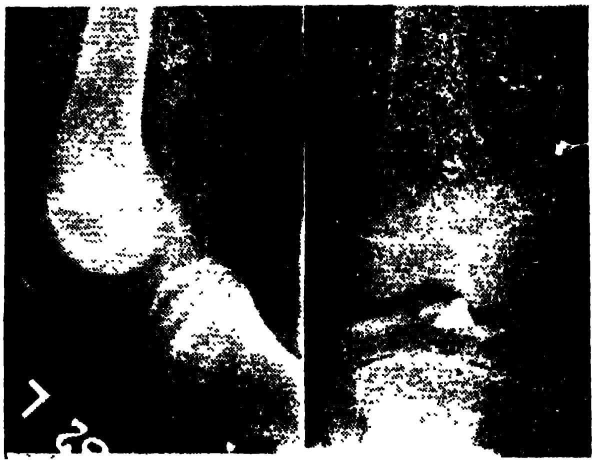

Fig. 1—Showing A Soft Tissue Shadow on the Medial Side of the Lower End of Femur without Erosion of the Bone

Management—A total excision was done three weeks later. The mass was found to be attached to the periosteum over the anteromedial aspect of the left femur in the lower end. The mass was oval,

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yellowish, soft, lobulated, encapsulated and measured 12 × 8 × 6 cm. (Fig. 2).

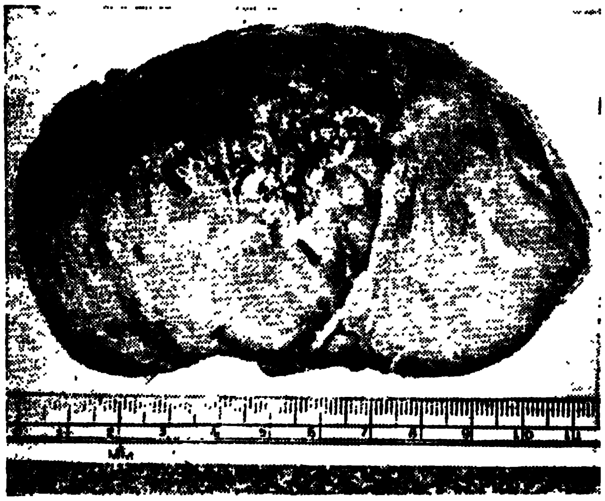

Fig. 2—Showing the Encapsulated and Lobulated Tumour

Postoperatively, the patient did very well. On the tenth day the stitches were removed, the wound was healthy and the patient was discharged. After about a month, the patient developed a small swelling at the upper end of the incisional scar, which eventually burst to give rise to a sinus for which the patient had to undergo another operation when excision of the sinus tract was done. The patient became alright. For the last two years the patient is having no trouble with his left knee.

Histology—Microscopically, the tumour showed the presence of fibrous tissue capsule with underlying lobules of fat cells separated by vascularised fibro-connective tissue septae. The fat cells are polyhedral in shape with eccentric nuclei and vacuolated cytoplasm (Fig. 3).

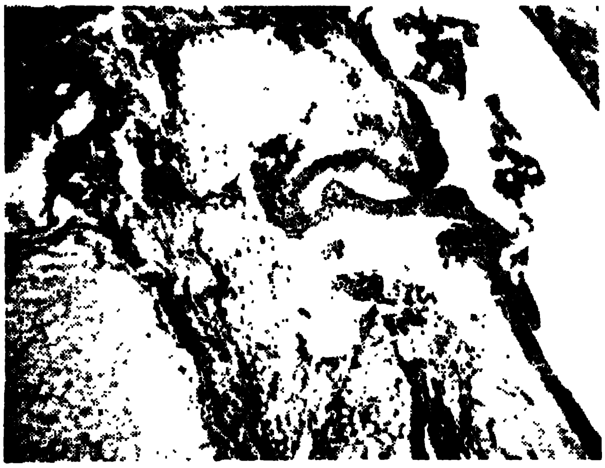

Fig. 3—Showing A Portion of the Fibrous Tissue Capsule with the Underlying Lobules of Fat Cells

DISCUSSION

Lipomas in relation to the periosteum are rarely seen. Almost all the cases are reported in relation to the long bones (Power, *loc. cit.*; Bland-Sutton, *loc. cit.*; Richmond, *loc. cit.*; Fairbank, *loc. cit.*). Pressure symptoms in the form of the involvement of the nerves are on record (Richmond, *loc. cit.*). Malignant changes in the periosteal lipoma are not met with in the available literature. If the tumour is left as such, it might grow further as reported by Smith (*loc. cit.*), where the lump was the size of man's fist. The mass, if not removed surgically, is bound to produce pressure symptoms being in close proximity with the bone. The histogenesis of the tumour is still in doubt, whether it arises from the periosteum or from the soft tissue around the point and later merely comes in apposition with the periosteum, may be difficult to determine with infallibility. Fairbank (*loc. cit.*) suggested that the term "parosteal", is preferable to "periosteal", as applied to these lipomata and both these terms are more accurate than the term subperiosteal. On careful analysis of the available data of the recorded cases of this entity, one may observe that the majority of the cases are in the ends of the long bones; further, we are tempted to postulate the hypothesis that the fatty tissue is seen in the minute foraminae at the ends of the long bones, that they arise from the fatty tissue underneath the periosteum and later on erode the periosteum to be incorporated in it. This view may not satisfy the operative findings on many records, but has to be kept in mind, though the possibility of its origin from the periosteum or superficial to the periosteum is the more accepted view.

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Accidental Haemorrhage

During the last 30 years there has been remarkable progress in the methods of management of both placenta praevia and accidental haemorrhage. But, while the overall prognosis has considerably improved in favour of placenta praevia. the position of accidental haemorrhage. particularly of the concealed variety, remains as gloomy as before. This is because accidental haemorrhage. unlike placenta praevia. is often associated (at least in graver forms) with two serious complications. namely. renal failure and defective blood coagulation.

It is difficult to estimate the true incidence of accidental haemorrhage, because the diagnostic criteria used by different centres are not always uniform. Figures are acceptable only from those centres in which definite evidence of abruptio are sought and noted including examination of the placenta after delivery Browne[1] confining himself to toxaemic ante partum haemorrhage recorded the incidence as 0.6 per cent. Incidence of accidental haemorrhage is definitely less than that of placenta praevia and the incidence is considered to be less than half[2]. Roy Chowdhury[3] has observed the relative incidence of accidental haemorrhage and placenta praevia as 1 : 1.6.

Most obstetric writers refer to only two types of accidental haemorrhage viz., revealed and concealed. It is however, advisable to include the third form.—combined or mixed—as otherwise in many cases. the gravity of the condition may be misjudged and assessed only on the amount of blood lost per vaginum. In Roy Chowdhury's[3] series the incidence of mixed and concealed variety were higher than that of revealed type.

There has been a great deal of controversy over cause-effect relationship between pre eclamptic toxaemia and accidental haemorrhage. Roy Chowdhury[3] has found toxaemia as the commonest aetiological factor. Hibbard and Hibbard[4] on the other hand. declared that 'there is little or no connection between the two conditions. The theory underlying the association of pre-eclampsia is that there is hypertensive spasm of the vessels supplying the placental site which results in capillary anoxia. When the hypertensive spasm is relieved. the damaged capillaries can not cope with the vascular engorgement and bleeding therefore takes place. Besides toxaemia, there may be other types of hypertension which are equally responsible for this sort of 'uteroplacental apoplexy'. Hence hypertension. both toxaemic and non-toxaemic, is considered as one of the major aetiological factors of accidental haemorrhage.

Amongst other causes. direct trauma, trauma of external version, sudden release of intra-uterine pressure following rupture of membranes for hydramnios. dragging upon short umbilical cord are a few amongst many others which can be listed as rare aetiological factors. Reference has been made of supine hypotensive syndrome as a cause of accidental haemorrhage[5]. Roy Chowdhury[3] found association of folic acid deficiency with accidental haemorrhage in 23.7 per cent cases. Apart from being responsible for macrocytic anaemia. folic acid deficiency is responsible for multiple obstetric hazards viz.. abortion. premature labour. accidental haemorrhage. pre-eclamptic toxaemia, foetal congenital malformation and postnatal pyrexia.

Accidental haemorrhage is more frequent in grande multipara. The frequency increased with the order of parity[1]. But age increases with increasing parity and as such whether age or parity is primarily responsible is still debatable. Because. if parity is significant then local cause in the uterus like subinvolution is the aetiological factor. On the other hand. if advancing age is given the primary importance, then hypertension becomes significant as the cause of accidental haemorrhage. Roy Chowdhury[3], however. observed an increased incidence in grande multipara (61 1 per cent) but the incidence was high not in the elderly group but in the age group between 26 and 30 years.

The diagnosis. treatment and prognosis of revealed accidental haemorrhage are the same as in placenta praevia. In fact. clinical differentiation of revealed variety of accidental haemorrhage from a 'low dipping' placenta is often difficult. Such mistakes. however, are not costly, because the treatment for one is just the treatment for the other.

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[1] BROWNE, O'DONEL—*Proc. Roy. Soc. Med.*, 48: 414, 1952.

[2] DONALD, I.—Practical Obstetric Problems, 3rd ed., 1964. Lloyd-Luke, London, p. 326.

[3] ROY CHOWDHURY, N. N.—*J. Indian M. A*, 63: 271, 1974.

[4] HIBBARD, B. M. and HIBBARD, E. D.—*Brit. Med. J.*, 2: 1430, 1963.

[5] CHASSAR MOIR, J. and MYERSCOUGH, P. R.—Munro Kerr's Operative Obstetrics, 8th ed., 1972, Bailliers, London, p. 807.

But in mixed or concealed variety, shock is out of proportion to the degree of external or internal haemorrhage, and in severe cases, there are risks of hypofibrinogenaemia and anuria. Fortunately, the latter risks are rare, but when the patients are admitted in very late stage as reported by Roy Chowdhury[3] such complications are not infrequent.

Concept of coagulation failure associated with accidental haemorrhage has recently been modified.

It is no more accepted that coagulation failure in accidental haemorrhage is entirely due to fibrinogen depletion. Production of excessive fibrinolytic substances may be equally responsible for the haemorrhagic state. This distinction may be important from treatment point of view.

Two types of mechanisms are involved in the process of fibrinogen depletion in abruptio placentae. The first mechanism consists of elaboration of thromboplastin like material from the damaged decidua or chorion (rich in clot promoting substances) which enters the general circulation of the mother. This substance causes widespread intravascular coagulation with rapid consumption of available circulating fibrinogen.

Apart from this, the fibrinogen depletion may also be due to incorporation of large amounts of circulating fibrinogen in the huge retroplacental clot of concealed accidental haemorrhage. It has been shown[6] that up to two-thirds of normally circulating fibrinogen could thus be utilised leading to the state of hypofibrinogenaemia.

Hence, clot formation is initially responsible for defibrination of blood. But excessive clot formation stimulates body's defence mechanism with activation of fibrinolysin, better known as plasmin—a potent substance for clot dissolution. Plasmin does not exist as such but is derived from normal plasma globulin called plasminogen. Plasminogen has to be activated by an enzyme known as 'activator' in order to be converted to 'plasmin'. These activator substances are present in small quantities in plasma but are present in large amounts in damaged tissues like the uterus, brain, lungs, prostate. etc. In abruptio placentae, large amounts of plasmin are liberated, gets into the clot and digests the fibrin by being adsorbed on to its surface. Fibrin degradation products (FDP), thus produced, also have an anticoagulant effect. The normal circulating plasma contains antiplasmin which can neutralise the fibrinolytic plasmin and thus prevents excessive fibrinolytic activity. Hence, abnormal fibrinolytic activity may in certain cases be associated with hypofibrinogenaemia, but this is not always the rule.

Coagulation failure may lead to diffuse bleeding in different parts of the body. 'Couvelaire uterus', often found in association with accidental haemorrhage, is not always associated with coagulation failure. Post-partum haemorrhage due to coagulation failure is almost always associated with atonic uterus irrespective of presence or absence of a 'Couvelaire uterus'. Roy Chowdhury[3] has performed hysterectomy in one case of 'Couvelaire uterus' and possibly this was done to control atonic post-partum haemorrhage.

The principles of treatment for an average case of accidental haemorrhage are: Keeping the patient quiet with sedation, replacement of blood loss by liberal transfusion and expediting the delivery by low amniotomy and if necessary with synthetic oxytocin infusion. To this may be added, the careful observation which an emergency bleeding case demands on it's own merit and anticipation and early detection of the possibility of imminent coagulation failure.

Exceptional cases of accidental haemorrhage may be of two extremes. One group may have mild symptoms, (Phase 1 of Browne's[1] calsification) and if foetal heart sounds are present, caesarean section may offer the best chance of foetal survival. If child has not reached the age of viability—even expectant treatment up to 38 weeks is justified provided there is minimal or no local tenderness. The other group consists of bad type of concealed accidental haemorrhage with features of either hypofibrinogenaemia or oliguria.

Though there are theoretical objections against early amniotomy and synthetic oxytocin infusion in severe cases of concealed accidental haemorrhage yet these procedures have been found most useful in expediting delivery with minimum maternal hazard.

Caesarean section, as a treatment, was freely employed by obstetricians some 30 or more years ago. In recent years, however, conservative treatment is generally accepted and the remarkable success has been achieved mainly by adequate blood transfusion. In spite of this, again there has been a growing tendency in many centres to perform caesarean section not only on foetal indications (Browne's[1] Phase I group) but also on maternal grounds in order to reduce the risk of hypofibrinogenaemia and oliguria. Douglas *et al.*[7] reported 40 per cent incidence of caesarean section in their series and they have performed the operation within 6 hours of placental separation if delivery did not occur within that period. This time limit is important; otherwise caesarean section performed long after the onset of placental separation would increase the risk of shock, hypofibrinogenaemia and oliguria. In Roy Chowdhury's[3] series, however, most of the patients were seen long after the placental separation started and he reported 2 caesarean sections in 76 cases.

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[6] PRITCHARD. J. A. and WRIGHT, M. R.—*New Eng. J. Med.*, 261 : 218, 1959.

Once coagulation failure has already started, the treatment is to inject pure fibrinogen 4-6 g. intravenously or if that is not immediately available, double, triple or even quadruple strength plasma. One bottle of plasma contains 1.1 g. of fibronogen and hence 2 bottles of double strength plasma will supply 4.4 g. which is sufficient to counter hypofibrinogenaemia in most cases. If fibrinogen and plasma are not available massive transfusion of fresh whole blood would help to restore the depleted fibrinogen to normal level. One pint of blood increases fibrinogen by 10 to 15 mg. per cent.

In spite of this specific therapy, haemorrhage in some cases might continue owing to excessive fibrinolysin. Further infusion of fibrinogen under these circumstances would be injudicious and even detrimental to the patient. In these circumstances, it may be safer to administer epsilonamino-caproic acid (EACA), a powerful antifibrinolysin, in a dose of 4-6 g. by slow intravenous injection. There is however a danger of provoking thrombosis with this drug. EACA together with heparin may prove to be the most effective treatment under such circumstances[8].

Even with modern methods of treatment, the foetal death rate in accidental haemorrhage remains at a level of 50 per cent rising sharply to about 100 per cent in the concealed variety. Maternal mortality is also not insignificant.

Better quality of antenatal supervision and recognition of abruptio in its earliest stage can perhaps bring down the maternal mortality and perinatal death rate to an appreciable low level.

B. N. CHAKRAVARTY

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[7] DOUGLAS, R. G., BUCHANAN, M. I. and McDONALD, F. A.—*J. Obstet. Gynaec. Brit. Emp.*, **62**: 710, 1955.

[8] BONNAR, J., McNICOL, G. P. and DOUGLAS, A. S.—Modern Trends in Obstetrics, Ed., Kellar, R. J. Vol. 4, 1969, Butterworth, London, p. 162.

CURRENT MEDICAL LITERATUR

Susceptibility to Malignant Hyperpyrexia

MOULDS, R. F. W. and DENBOROUGH, M. A. (*Brit Med. J.*, **2**: 245, 1974) from the University of Melbourn Department of Medicine, Royal Melbourne Hospital Victoria, Australia, state:

While the serum level of creatine phosphokinase i useful as a screening test for malignant hyperpyrexi it does not provide certain identification of susceptibl individuals. A much more accurate prediction may b made by pharmacological testing *in vitro* of muscl biopsy specimens. Individuals susceptible to malignant hyperpyrexia have muscle with heightened sensitivity to halothane, caffeine, succinylcholine, potassium chloride, and temperature change. Use of thi test allows separation of susceptible individuals fro those not at risk in families of patient who hav experienced malignant hyperpyrexia.

Effect of Somatostatin in Patients with Acromegaly

YEN, S. S. C., SILER, T. M. and DEVANE, G. W (*New Eng. J. Med.*, **290**: 935, 1974) from the Department of Reproductive Medicine, University of California, Sen Diego, School of Medicine, write:

In five patients with acromegaly, the chronic hypersecretion of gowth hormone was effectively inhibite by the administration of synthetic somatostatin (intravenous bolus of 250 µg. followed by a constant infusion 500 µg. per 45 minutes). The rate of growth hormon decline during the infusion was rapid, with a mea half-time of 24 minutes. After the infusion, a retur of secretion to previously elevated levels was observe These data suggest that the inhibitory action of somatostatin on growth hormone secretion is nearly complete and that the biologic action of somatostatin i brief. In addition, somatostatin induced a concomitan fall in circulating levels of insulin, glucose and prolactin and an increase in fatty free acids. No effec on levels of thyrotropin, follicle-stimulating hormon or luteinising hormone was observed.

Postfracture Fat Embolism

POWERS, R. C. and DAVIS, G. L. (*Louisiana Stat Med. Soc.*, **126**: 205, 1974) from the Department o Orthopaedic Surgery, Ochsner Clinic and Ochsne Foundation Hospital, New Orleans, Louisiana, write

The case reports of three patients who had postfracture fat embolism are presented. Such patients ar evaluated by monitoring of vital signs, serial haemoglobin, haematocrit, and arterial blood gas determinations and daily examination of the urine for fat. The are considered to have an increased risk of thromboembolic complications and are therefore given lo molecular weight dextran (500 ml. daily intravenously). When indicated, we administered a large singl dose of methylprednisolone (30 mg./kg.), and hi partial pressure oxygen as required with and withou mechanical ventilatory assistance.

Leucocyte and Myocardial Infarction

FRIEDMAN, G. D., KLATSKY, A. L. and SIEGELAUB, A. B. (*New Eng. J. Med.*, **290**: 1275, 1974) from the Departments of Medical Methods Research and Medicine, Kaiser-Permanente Medical Care Program, Oakland, Cal, observe:

The multiphasic-examination findings of 464 persons in whom a first myocardial infarction later developed were compared with those of two control groups, one matched for age, sex and race (ordinary controls), and the other matched in addition for standard coronary risk factors (risk controls). The total leucocyte count, measured, on the average, 16.8 months before the myocardial infarction, was strikingly related to development of infarction. The mean leucocyte count in cases was significantly higher ($p < 0.001$) than in either control group. Ascending from lowest to highest quartile in the cases and ordinary controls the increase in risk of myocardial infarction associated with the leucocyte count was similar to that found for cholesterol and blood pressure. Cigarette smoking, which was strongly related to the leucocyte count, may account for about two thirds of the relation of the count to infarction. The leucocyte count may prove valuable in the routine assessment of risk of myocardial infarction.

Quinidine Elimination in Patients with Congestive Heart Failure or Poor Renal Function

KESSLER, K. M., LOWENTHAL, D. T., WARNER, H., GIBSON, T., BRIGGS, W. and REIDENBERG, M. M. (*New Eng. J. Med.*, **290**: 706, 1974) from the Departments of Medicine and Pharmacology, Temple University School of Medicine, and the Nephrology Service, Walter Reed Army Medical Centre, write:

Plasma quinidine half-life values, determined by a relatively specific double extraction method in eight patients with poor renal function, eight with congestive heart failure, and nine controls were similar for all groups. When quinidine was measured by a non-specific fluorescent method the half-life values calculated for the uraemic patients were longer than those for the controls. The non-specific method does not differentiate slow biotransformation of quinidine from normal biotransformation but slow excretion of metabolites.

Steady-state plasma quinidine concentrations were measured in 14 patients treated for arrhythmias and 12 with congestive heart failure. Therapeutic effectiveness was associated with concentrations of 2.3 to 5.0 μg. per millilitre and ineffectiveness with lower levels or complicating illnesses. The relation of dose to steady-state blood level was similar for the two groups. Quinidine elimination appears to be grossly normal in patients with congestive heart failure or poor renal function.

Paediatrician and Coronary Heart Disease

GRAHAM, M. F. (*Texas Med.*, **70**: 47, 1974) from Dallas East Medical Centre, 9239 Garland Road, Dallas, Texas, observes:

Viewed from an aetiological standpoint, atherosclerosis is a paediatric disease. From the perspective of prevention, wherein lies the primary hope of curtailing the disease, it therefore deserves as much, if not more, attention in paediatric age groups as it currently receives in disciplines dealing with adults. Despite the many unknowns which remain concerning the disease, there now exist sufficient data to warrant the early use of screening and, in many instances, intervention techniques (such as behaviour modification, prescription of diets, exercise, and proper medication) by the paediatrician or generalist. In the case of many such practitioners, such will necessitate a re-education of thought processes coupled with a flexibility of mind and purpose characteristic of the avant-garde clinician.

While the total impact made by any one group on the problem, vast and complex as it is, may be comparatively small, still no contribution to its solution and/or control can be considered insignificant. Certainly, in the light of current evidence, no all-out effort against coronary heart disease can be complete without the whole-hearted support and participation of the paediatric community. The unique opportunity for the paediatrician to accumulate helpful data (e.g., to establish norms), evaluate older screening techniques and perhaps originate new ones, and to establish more reliable criteria for intervention, is one which he cannot afford to ignore. Moreover, the paediatrician is in a singularly advantageous position to couple detection of risk factors in children with immediate intervention, where indicated, an inherently weak link in programmes involving screening alone The very nature of the atherosclerotic process dictates that the paediatrician must, sooner or later, become intricately involved in its eventual control.

Giant Lymph Node Hyperplasia of the Mediastinum

CRADDOCK, D. R and PEACOCK, M. J. (*Med. J. Aust.*, **1**: 795, 1974) from Cardiothoracic Surgical Unit, Royal Adelaide Hospital, write:

Giant lymph node hyperplasia is a disease of unknown aetiology which causes a discrete mediastinal radiographic opacity. There are two clinicopathological variants. The plasma cell type is frequently associated with fever, and haematological abnormalities which disappear when the hyperplastic lymph node is excised. The more common hyaline vascular type is asymptomatic and is usually discovered by routine chest radiography. Surgical excision is curative. This paper describes three cases of giant mediastinal lymph node hyperplasia of the hyaline vascular type, which were successfully treated by surgical excision.

Methyltestosterone with Imipramine in Men : Conversion of Depression to Paranoid Reaction

WILSON, I. C., PRANGE, A. J. Jr., and LARA, P. P. (*Amer. J. Psychiat.*, **131**: 21, 1974) from the Department of Research Psychiatry, Dorothea Dix Hospital, Raleigh, and from the University of North Carolina, Chapel Hill, write:

Five men with primary unipolar depression were treated with methyltestosterone and imipramine. Four promptly showed a paranoid response that cleared rapidly when treatment with the hormone was discontinued. The shift from depression to a paranoid reaction may have resulted from an increase in aggression, which may in turn have been the result of the interplay between the hormone and the drug and the effects of this interplay on brain biogenic amine metabolism.

Effects of Procaine Amide in Patients with Intraventricular Conduction Delay

SCHEINMAN, M. M., WEISS, A. N., SHAFTON, E., BENOWITZ, N. and ROWLAND, M. (*Circulation*, **49**: 522, 1974) from the Medical Service, San Francisco General Hospital, and the Department of Medicine and the Division of Clinical Pharmacology and School of Pharmacy, University of California School of Medicine, San Francisco, California, write:

In 16 patients with intraventricular conduction delay (IVCD) and cardiac arrhythmias, procaine amide (PA) was infused intravenously at rates of 30 [illegible] mg./minute until a maximum dose of 750-1,000 mg was administered. His bundle electrograms and plasma PA levels were obtained every 5 minutes during infusion and for 25 minutes thereafter. The mean peak PA level (10.2 ± 3.4 μg./ml.) was achieved at the end of infusion. Mean control A-V nodal conduction times (A-H: 99.5 ± 34 msec) and A-H at peak PA (90 ± 15.3) did not differ significantly. However, the mean infranodal conduction time (H-Q) at peak PA (68.1 ± 14.8 msec) was significantly higher than control measurements (57.6 ± 13 msec) ($P < 0.001$), with a mean per cent increase of 18 (11 msec), and maximal prolongation of H-Q occurred at peak PA blood levels. There was no statistically significant correlation between maximum absolute or per cent change in H-Q and control H-Q, control QRS duration, or peak PA levels. One patient with sinus bradycardia had further decreased in rate and a junctional rhythm after PA. Intravenous administration of PA appears safe and effective for patients with IVCD in terms of arrhythmia control and absence of high degree A-V block, ventricular ectopic beats, or standstill, but caution should be used in treating patients with sinus bradycardia.

Evaluation of Chronic Uraemia

KOPPLE, J. D. and COBURN, J. W. (*J. Amer. Med. Ass* **227**: 41, 1974) from the Medical and Research Services, Veterans Administration Wadsworth Hospital Centre, and Department of Medicine, UCLA School of Medicine, Los Angeles, write:

In chronically uraemic men receiving carefully controlled diets of varying protein intake during metabolic study, the ratio of serum urea nitrogen (SUN) to serum creatinine correlated closely with protein intake, this ratio was altered abruptly by even minor catabolic stresses or dehydration. The ratio of SUN to creatinine can be used to estimate the daily protein intake and can indicate the presence of unrecognised catabolic stress. Knowledge of its relation to protein intake can be used to determine the degree of protein restriction required to achieve a certain SUN level. In subjects undergoing periodic haemodialysis, SUN-serum creatinine ratios were lower, and the SUN level was a better indicator of dietary protein intake than the SUN-creatinine ratio.

CURRENT TOPIC

Histocompatibility Typing

SATYA N. CHATTERJEE*

In the early days of transplantation there was no practical method of predicting the time of onset or the severity of the rejection process. It was generally considered that ABO compatibility between the donor and recipient was the minimum acceptable criteria. For years different workers worked with a variety of serologic techniques on the characterisation of leucocyte antigens. Lymphocytes have been shown to carry some histocompatibility antigens on its surface, making it a suitable cell for typing procedures—although there is no assurance that different tissues will have the same quantitative and even qualitative distribution of transplantation antigens.

SEROLOGICAL METHOD:

Dausset (1958), using serological methods, discovered the first leucocyte antigen responsible for the rejection of grafts, the Mac or Group 1 antigen. Patel *et al.* (1968) analysed one hundred and four patients operated in ten centres between 1963 and 1967, at a time when the tissue typing was not as refined and streamlined as it is today. Still, they concluded that HLA compatibility significantly affected clinical ranking, creatinine clearance, and the number and severity of rejection episodes, though they agreed that "histocompatibility antigens in kidney transplantation are intermediate in strength" and this may not be true in other organ transplantation. The authors also suggested that the effect of mismatches becomes important for renal function after a period of time (perhaps a year) has elapsed following transplantation. Simonsen (1965,

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Department of Health Services, Los Angeles County-University of Southern California, Medical Centre
*F.R.C.S. (Eng., Edin. & Glas.)

1966) holds a different hypothesis. He thinks that a few strong histocompatibility alleles determine the results of kidney transplantation, and mismatches of one locus with three or possibly four very strong alleles lead to death within the first year. Batchelor and Joysey (1969) analysed fifty-two cases, and concluded that total number of graft incompatibilities was significantly correlated with the subsequent clinical status of the patients. When incompatibility was limited to one or less antigen, seventy-five per cent had good or moderately good graft function.

LEUCOCYTE TYPING:

The positive correlation between leucocyte typing and clinical results is mainly based on observations of related donors. It remains to be proved that the results will be as much conclusive with unrelated donors, hence with cadaver transplants.

Hume (1969) found the correlation of matching and the success of the transplant highly significant (P value of 0.0001). Unfortunately, however, this same degree of correlation did not exist in his cadaver transplant.

In contrast Van Rood (1969) presented a series of thirty-seven cadaveric grafts (Table 1).

Table 1—*Showing Results with Cadaveric Grafts*

No. of HLA donor and recipient mismatches	No. of grafts still functioning	% of grafts still functioning (approximate)	Total of grafts performed
0 - 1	6	75	8
2 - 3	7	60	12
4 or more	5	30	17

The percentage of functioning grafts differed in these groups clearly with a P value of significance of 0.02 (Van Rood, *loc. cit.*).

Because of the segregant relationship (no bivalent alleles) among the antigens in the LA series (HL-A 1, 2, 3), it has often been suggested that the HL-A system consists of two or more distinct regions and Dausset (*loc. cit.*) said, "It has been possible to subdivide the HLA locus into at least two sub-loci, each of which is able to govern multiple alleles alternatively". However, the absence of bivalent alleles may, for instance, simply reflect the effect of growing of moieties on the cell surface and be irrelevant as to whether a single cistron carries both nucleotide sequences that separately would determine the structures reacting with the appropriate antibodies. Similarly, the presence of a bivalent allele does not imply anything about its nucleotide sequence compared with the two monovalent alleles. In the absence of detailed information on the chemical nature of the HL-A antigens and the lack of authenticated instances of crossing over or mutations within the system, terms such as "mutational sites", "recombinational sites", "sub-loci" and so forth are inappropriate (Grove and Bach, 1970).

MISMATCH:

A "minor mismatch" occurs when a recipient has an antigen not possessed by the donor. If the number of antigens recognised is limited, a minor mismatch might increase the probability that the donor possesses one or more unrecognised antigens lacking in the recipient (a major mismatch). Terasaki *et al.* (1966) tested the effects of minor mismatches on kidney biopsy score, using multiple regression analysis, and found minor mismatches to be non-significant (P = 0.13). Van Rood and Eernisse (1968) interpreted their data as indicating an effect of minor mismatches, since the difference between observed and expected for compatible (but not identical) matches are not much different from incompatible matches. However, the difference between identical and compatible matches (with minor mismatches) was also not striking, nor can the expected values be taken literally since they were not based on the original transplants.

HISTOCOMPATIBILITY:

Rapaport and Dausset (1970) wanted to rank the optimally compatible subject, by expressing it as a net histocompatibility ratio (NHR) between prospective donors and recipients. The best clinical results have been when this ratio is of 0.5 : 1. Donor-recipient compatibility situations when the ratio was 0.25 or less, have been associated with a high incidence of transplant failure, regardless of whether the organ source was a living, related donor or a cadaver donor. In contrast, even in related living donors of forty-one kidneys, Lucas *et al.* (1970) found no correlation in the quality of the graft function with histocompatibility matching.

Principle of leucocyte grouping is that the donor and recipient lymphocytes are tested for agglutination (a reaction that occurs in the absence of complement) or cytotoxity (a complement dependent test)—against a panel of antibody sera. The behaviour of the potential donors' and recipients' lymphocytes to these sera are compared, so that mismatches are recorded whenever the donor is positive and the recipient negative for any given antiserum. A match was considered to be present in all instances in which the donor's cells failed to react with any given antiserum, even though the corresponding recipient's cells were not tested against the same antiserum. Similarly, a match is present in all cases in which the recipient's cells reacted with a given serum, even if the corresponding donor's cells were not tested with that particular serum. Joysey *et al.* (1973) pointed out a very interesting finding. Reporting 126 kidney transplants from cadaver donors, they observed that the survival of group O recipients was better than that for non group O recipients. They even suggested that "the incompatibility might conceivably be "antigen O" itself, and so a better survival might be expected in the category "donor A to recipient A" than in category "donor O to recipient A". Thus, they have questioned the very basic assumption underlying transplantation practice. However, this experience is not shared by Terasaki (1974). Joysey *et al.* (*loc. cit.*) also suggested that matching at the second locus series produces improved surrival.

Morris (1973) in his Hunterian oration reviewed 183 primary cadaveric renal transplants which failed to show a marked influence of HLA matching on the outcome of the graft. The actuarial survival curves did not show any statistically significant difference between different grades of matching. Morris (*loc. cit.*) also suggested that incompatibilities at the second locus exert more influence on graft outcome than those at the first locus.

Opelz *et al.* (1974) analysed the graft survival with respect to histo-incompatibility in over 3000 human kidney transplants. They felt that in cadaver donor transplants HLA matching seemed to be of some influence, although not attaining any statistical significance. According to them the second locus antigens were not more significant than the first locus antigens. They did agree with others that in living donor transplants the superiority of grafts between HLA identical persons is uniformly accepted, with a 90 per cent survival at one year between HLA identical siblings compared with 81 per cent survival at one year between parent to child transplants with a B match (compatibility with fewer antigens determined on the donor than in the recipients). This is better than HLA identical cadaveric transplants where the graft survival at 1 year was 50 per cent.

Dausset *et al.* (1974) studied 918 cases of cadaver renal grafts and showed a 70 per cent two-year survival in HLA identical grafts compared to 34 per cent for those with one or zero identities. On the other hand, Belzer *et al.* (1974) found no correlation between graft survival and HLA matching in 200 consecutive primary cadaver kidney grafts.

CONCLUSION

The clinical transplanter is at a loss as whom to believe amongst the giants tissue typers. They have to get together to compare their results. In the meantime HLA typing should be carried out and transplantation should be done between HLA non identicals in the absence of a better matched recipient.

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NOTES AND NEWS

Serpentine Found In Asbestos Mines May Cure Fluorosis

Inaugurating a symposium at Hyderabad on Fluorosis Andhra Pradesh Chief Minister Mr. J. Vengal Rao congratulated the scientists of the Geological Survey of India and doctors of the Osmania General Hospital for their discovery that serpentine, found in asbestos mines, could cure fluorosis.

The chief minister recalled that it was in 1936 that the disease was first noticed at Podili in Andhra Pradesh.

Mustard Oil Can Lead To Heart Condition

Habitual consumption of too much mustard oil is not good for the heart, according to research conducted by the Indian Council of Medical Research.

The research was done on monkeys which were fed diets containing 20 per cent fat in the form of mustard oil one year. At the end of the year, half of the experimental animals had developed myocardial fibrosis in the right ventricle of their hearts.

No such changes were noticed in the hearts of these monkeys that were fed with ground-nut oil or hydrogenated vegetable oil.

The mechanism by which mustard oil leads to the heart condition is not clear, but the agent suspected is cerucic acid, a major component of mustard oil.

Role of Voluntary Health Association Commended

A suggestion for tackling the basic causes of diseases, with the help of the medical profession and voluntary agencies, rather than building more hospitals was made by the Union Minister for Heavy Industries, Mr. T. A. Pai. while inaugurating the National Hospital Convention and Exhibition at Madras.

Mr. Pai said that at present 23 per cent of the bed strength in the country was contributed by voluntary agencies and this was a positive contribution to the nation.

The Governor, Mr. K. K. Shah, advised the State units of Voluntary Health Association to survey the medical facilities in rural areas and plan how to reach them and how to encourage emergence of other institutions As the costs of medicines were beyond the reach of common man, VHA could devise ways and means of bringing them down, he said. He welcomed its proposal to start courses on hospital administration to suit the needs of various departments of hospital.

Dr. Jacob Cherian, Secretary VHA, said that the Voluntary Health Association of India was to coordinate the activities of various organisations in the field.

WHO Regional Committee Warns Against Recrudescence of Malaria

The 27th session of the WHO Regional Committee for South-East Asia which was held in Bali, Indonesia, passed a resolution noting "the recrudescence of malaria in epidemic form in member countries of the Region, particularly Bangladesh, Burma, India, Indonesia, Maldives, Nepal, Sri Lanka and Thailand". The resolution requested the Regional Director to initiate action in regard to obtaining an adequate and timely supply of pesticides, especially DDT, at reasonable cost. It also requested him to "take steps to develop a manufacturing capacity for the required quantity of insecticide within the Region itself."

Second Course in Continuing Education in Oncology Begins in January 1975

A course in Continuing Education in Oncology, the second of its kind, will be held on January 23-26, 1975, at the auditorium of Tata Memorial Hospital under the joint auspices of Tata Memorial Centre and Indian Cancer Society. Details may be had from the Organising Secretary, 2nd Annual Course, Continuing Education in Oncology, Tata Memorial Hospital, Parel, Bombay-400 012.

OBITUARY

Dr. M. N. De

Death took place on 30-8-74 of Dr. M. N. De, popularly known as Dr. Moni De, a legendary figure among Indian members of the medical profession in pre-Independence era when British officers in the I.M.S. cadre were in their heyday.

Born at Shibanandabati in the Howrah district of West Bengal, Dr. De who had a uniformly brilliant academic career, passed the I.Sc. examination from St. Xavier's College with distinction in chemistry in 1912. Securing Government scholarships throughout and receiving several gold medals for his proficiency in different subjects, Dr. De passed the M.B examination in 1918 with honours in medicine and pathology. Later he became fellow of a number of international learned societies including the Royal College of Physicians (London), Pathological Society of Great Britain and Ireland, and International Association of Museums (Montreal, Canada). He was also President of the Calcutta Branch of the British Medical Association for a time.

Dr. De was the first Indian to become a professor of medicine at the Calcutta Medical College from the non-I.M.S. cadre. Before he joined the department of medicine he was professor of pathology occupying the same chair as that of Sir Leonard Rogers, and was professor and head of the department of medicine for ten years. He was an eloquent speaker, a brilliant pathologist and a wonderful clinician at the same time. His lectures served as models for the medical teachers in those days. Students from other medical institutions in the city used to slip into the packed lecture theatre of the Calcutta Medical College to listen to him. He was also one of the pioneers to create the faculty of postgraduate medicine in Bengal.

Dr. De's vast contributions to medical literature include as many as 125 publications and an authoritative book on Bacteriology, which earned him an international reputation. After retirement from the Medical College, Calcutta, he was offered the post of professor of tropical medicine at the Liverpool University in the UK. Dr. De's excellence as a teacher, his liberalism and warmth of behaviour endeared him to the members of the medical profession in the neighbouring Bangladesh and he visited Bangladesh several times in response to their invitation.

Though born in a very poor family Dr. De rose from humble beginnings to a position of international recognition and he was proud of being a self-made man. Possessing, as he did, a strong personality he would not accede to a proposal coming even from the highest authority, if it went against his principle Yet he had the deepest sympathy and compassion for his countless patients, whom he served for more than 3 decades. He was literally adored by his students who could consult him whenever they were in any difficulty or distress.

SUPPLEMENT

JOURNAL OF THE INDIAN MEDICAL ASSOCIATION

VOL. 63, No. 9 CALCUTTA NOVEMBER 1, 1974

Association Notes

IMA Working Committee—*Minutes of proceedings of the 111th meeting of the Working Committee of IMA held at New Delhi on Wednesday, the 10th April 1974, and continuing through Thursday, the 11th April 1974. (as confirmed at the 112th meeting of the Working Committee held at New Delhi on September 15-16, 1974).*

MEMBERS PRESENT:

(a) *Ex-officio Members*: (1) Dr. Ved Prakash (Delhi)—President, IMA; (In the Chair); (2) Dr. M. G. Bhide (Poona)—Immediate Past President, IMA, (3) Dr. P. K. Dutta (Dhanbad)—Sr. Vice-President, IMA; (4) Dr. N. Satyanarayana (Vijayawada) Vice-President, IMA; (5) Dr. Gyan Prakash (Jaipur)—Vice President, IMA; (6) Dr. P. C. Bhatla (Delhi) -Hony Genl. Secretary, IMA; (7) Dr. D. S. Mehra (Delhi) Hony. Joint Secretary, IMA; (8) Dr. M G. Garg (Delhi)—Hony. Joint Secretary, IMA; (9) Dr Satyendu Kundu (Howrah)—Hony. Joint Secretary, IMA, (10) Dr. Mohindra Nath (Delhi)—Hony. Treasurer, IMA, (11) Dr. A. B. Mukherjee (Calcutta)—Hony Editor, JIMA;

(b) *Representatives from State/Territorial Branches*: (12) Dr. J. V. R. Sarma, (13) Dr. N. L. Sastry, (14) Dr. B. Dayananda Rao—*Andhra Pradesh State Branch*; (15) Dr. M. I. Jahan—*Assam State Branch*; (16) Dr. J. Majumdar, (17) Dr. Sukomal Sen, (18) Dr. Gopal Das Nag, (19) Dr. Dinabandhu Banerjee, (20) Dr. Sushil Kumar Banerjee, (21) Dr. Sushil Bhattacharjee. (22) Dr. Asit Ghosh—*Bengal State Branch*; (23) Dr N. K. Misra, (24) Dr. K. Hazari, (25) Dr. H. N. Mitra, (26) Dr. K. P. Agarwal—*Bihar State Branch*; (27) Dr Prem Narain, (28) Dr. C. M. Desai—*Delhi State Branch*; (29) Dr. S. K. Parashar—*Goa, Daman & Diu Territorial Branch*; (30) Dr. I. G. Bhatt, (31) Dr. S M Rao, (32) Dr. A. B. Kothari—*Gujarat State Branch*. (33) Dr. R. Ananthanarayanan, (34) Dr. (Capt.) A. B Das—*Kerala State Branch*; (35) Dr. V. S. Achar, (36) Dr. N. S. Sathyanarayana, (37) Dr. M. A. Narasimhachar—*Karnataka State Branch*; (38) Dr. R. A. Bhagwat, (39) Dr. R. N. Chatterjee—*Madhya Pradesh State Branch*; (40) Dr. V. M. Bahulkar, (41) Dr. B. M. Dandekar, (42) Dr. D. S. Munagekar, (43) Dr. M. T. Paithankar, (44) Dr. R. K. Menda—*Maharashtra State Branch*; (45) Dr. (Maj.) Lal Chand Aggarwal—*Punjab State Branch*; (46) Dr. O. P. Kulshrestha—*Rajasthan State Branch*; (47) Dr. T. Thirugnanam, (48) Dr. B. Rama Rau, (49) Dr. T. M. Kumaraswami—*Tamilnadu State Branch*; (50) Dr. S. K. Kar—*Tripura Territorial Branch*; (51) Dr. B. S. Mehta, (52) Dr. Navin Chandra, (53) Dr. K. P. Mehrotra—*Uttar Pradesh State Branch*;

(c) *Co-opted Members*: (54) Dr. A. K. N. Sinha (Patna); (55) Dr. M. A. Panwala (Bombay); (56) Dr. N. Banerjee (Calcutta); (57) Dr. P. R. Trivedi (Ahmedabad);

(d) *Invited Members*: (58) Dr. H. N. Shivapuri (Lucknow)—Past President, IMA; (59) Dr. S. Samaddar (Patna)- Past President, IMA; (60) Dr. A. P. Mittra (Delhi)—Past President, IMA; (61) Dr. Shantilal C. Sheth (Bombay)--Past President, IMA; (62) Dr. Bhola Nath (Varanasi)—Past President, IMA; (63) Dr. Pran Nath Anand (Delhi)—Hony. Asstt. Secretary, IMA; (64) Dr. L. D Malhotra (Delhi)—Hony. Secretary, IMA College of G.P.s; (65) Dr. (Mrs.) Lalita Rao (Bombay); (66) Dr. Y. G. Bodhe (Poona); (67) Dr. S. S. Ajagaonkar (Bombay); (68) Dr. B. D. Kalgutkar (Bombay).

MESSAGES OF INABILITY TO ATTEND THE MEETING:

The following members expressed their inability to attend the meeting:

(1) Dr. S. Hazary (Cuttack); (2) Dr. R. L. Shah (Rajkot).

CONDOLENCE RESOLUTION:

The following resolution was unanimously passed, all members standing in solemn silence for a minute:

> "This meeting of the Working Committee of the Indian Medical Association places on record its deep sense of sorrow at the sad demise of the following members of the Association and conveys its heartfelt sympathies to the members of the bereaved families:
>
> (1) Dr. K. N. Sharma (Delhi); (2) Dr. D. N. Sharma (Delhi); (3) Dr. S. C. Biswas (Dooars); (4) Dr. Rabindra Kumar Saha (Andul); (5) Dr. Subodh Chandra Ray (Chandernagore); (6) Dr. Raj Kapur (Kanpur); (7) Dr. S. P. Nallaseth (Bombay); (8) Dr. M. R. Pradhan (Bombay); (9) Dr. N. Venkateswara (Chilakaluripet); (10) Dr. Neelakantan L. K. (Trichinopoly); (11) Dr. T. J. Lalwani (Bombay); (12) Dr. Narendra Rao (Bud-Bud); (13) Dr. Kamla Kanta Hazari (Calcutta); (14) Dr. Dakshena Ranjan (Calcutta); (15) Dr. Bal Ram (Delhi); (16) Dr. C. P. Chaube (Delhi); (17) Dr. R. N. Thakural (Delhi); (18) Dr. P. B. Saxena (Agra); (19) Dr. Gulzari Lal Rastogi (Kanpur); (20) Dr. Ram Nath (Varanasi); (21) Dr. L. N. Mathur (Varanasi); (22) Dr. H. Sumitrao (Kakinada); (23) Dr. Kalyan Singh (Amritsar); (24) Dr. Rameshwar Das Gupta (Jagadhari); (25) Dr. Y. Sachdeva (Amritsar); (26) Dr. P. K. Duraiswami (Delhi); (27) Dr. Vas Dev Kohli (Delhi); (28) Dr. Dhanendra Dutt Veal (Calcutta); (29) Dr. Nirmal Kumar Bose (Dum-Dum); (30) Dr. B. D. Shah (North East Bombay); (31) Dr. G. S. Joglekar (Bombay); (32) Dr. M. P. Mehre (Sitapur); (33) Dr. Murari Lal Gupta (Rampur); (34) Dr. Jawahar Lal Rahatgi (Kanpur); (35) Dr. Chandramouli (Vijayawada); (36) Dr. C. Picheswara Rao (Vijay-

awada); (37) Dr. P. N. Das (Nidubrolu); (38) Dr. M. Vasudeva Rao (Hyderabad); (39) Dr. J. C. Sen (Bhagalpur and (40) Dr. D. K. Kothurkar (Poona).

PROCEEDINGS:

HUBLI MEETING (110TH)

1. i) *To confirm minutes of proceedings of the 110th meeting of the Working Committee held at Hubli on December 24-25, 1973.*

In addition to a few typographical and verbal corrections, the following corrections/alterations etc. were made to the draft minutes as circulated.

(a) *Item 8(iv)*- Substitute "Dr. V. D. Mullick" in place of "Dr. V. D. Kashyap".

(b) *Item 10—Doctors in Service*—Substitute the word "concern" in place of "regret" in the first line of the paragraph.

(c) *Item 13(iv)*—Substitute "Mr. Vilas Sathye (Jamnagar)" in place of "Dr. Vimil Sathye (Jamnagar)".

(d) *Item 14—3-2nd para* (Decision) Replace the entire para with the following:

"*Decision*: The Working Committee approves the action taken by the Hony. Secretary, JIMA in the matter of suspension of Dr. Sujit Dhar, Chief Asstt. Editor, JIMA and advises him to take further action against Dr. Sujit Dhar as necessary in consultation with the Hony Editor and Journal Committee as per rules."

After making the above corrections, additions/alterations the minutes were confirmed on a proposal by Dr. Sukomal Sen (Bengal) and seconded by Dr. V. S. Achar (Karnataka).

1. ii) *To consider business arising out of and action taken on items of proceedings of the 110th meeting.*

1) *Bombay Court Cases*:

The Working Committee noted that as per its earlier decision token payment of Rs. 3500/- has been made to the Legal Advisers at Bombay.

Decision: "The Working Committee desires the President and the Immediate Past President to finalise the payment if any additional amount was necessary."

2) *Membership number*:

The Working Committee was informed that a copy of the valid list of all Local Branches had been received from the Journal Office and affixing of permanent membership numbers (as already allotted to each member) to individual members on branch-wise basis had been taken in hand.

3) *A.P. State Faculty of IMA College of General Practitioners*:

The Working Committee noted that on receipt of the revised constitution of the A.P. State Faculty of the IMA College of General Practitioners, some modifications were suggested by the Hony. General Secretary which had been agreed to be incorporated by the A.P. State Branch in the revised constitution.

The State Branch had been advised to get all legal formalities completed by the Hyderabad College of General Practitioners (which had been proposed to be taken over under the A.P. State Faculty of the IMA College of General Practitioners) in getting itself wound up as per its constitution before merging itself into the A.P. State Faculty of the IMA College of General Practitioners.

Decision: 1: "The Working Committee advises the A.P. State Faculty of the IMA College of General Practitioners and the A.P. State Branch to study all implications of the revised constitution and to take legal advice before undertaking to bring the Hyderabad College of General Practitioners under its folds."

Decision: 2: "The A.P. State Branch should ensure that the IMA/IMA College of General Practitioners and/or the A.P. State Branch, IMA/A.P. State Faculty of the IMA College of General Practitioners will not be responsible in any way for any liabilities of the said Hyderabad College of General Practitioners after the latter wound itself off and merges into the A.P. State Faculty of the IMA College of General Practitioners."

4) *Membership Certificates of the IMA*:

The Working Committee noted that the list of Life Members of the Association had been brought up-to-date and certificates were under issue.

The Working Committee also noted that the local branches had also been advised to issue, if the branch so desired, membership certificates to other members on a prescribed form already circulated by the Headquarters Office.

5) *Opinion Poll—Rural Medical Relief including Family Planning*:

The Working Committee noted that the cases of reimbursement to participating doctors of expenses incurred were being looked into as recommended by the State/Territorial Branches.

Decision: "The Working Committee notes the report on the evaluation of the Study conducted on the Rural Medical Relief available (including family planning advice) and it directs that the report be studied with a view to helping in designing of future programmes of this nature."

6) *II-National Workshop Seminar on Rural Medical Relief- Future Pattern*:

The Working Committee noted that efforts were being made to secure assistance for publication of the proceedings of the above Seminar.

Decision: "The Working Committee decides to publish the proceedings of the II-National Workshop Seminar on Rural Medical Relief—Future Pattern held in August 1973 and sanctions the publication cost for the purpose if no financial assistance be available from any other source."

7) *Allotment of Cars/Scooters out of Public Utility Quota*:

The Working Committee noted that there was a great influx of applications and that the Ministry of Heavy Industry had been approached for increase in the quota of Premier President Car for which the demand was increasing. The Government had been approached and in a meeting with the officer concerned in the Ministry, it had been indicated that in addition to existing quota of Cars/Scooters, IMA would be allotted 50-60 Standard Gazel Cars and a large number of Luna Moped Motor Cycles, the confirmation for which was awaited.

The Working Committee noted that the Ministry of Heavy Industry had returned the applications of Government Doctors and advised the IMA that the quota was for private doctors only and that the Government Doctors should apply to respective governments for allotment out of government quota.

The administrative load being very heavy, the

Ministry had also agreed to let the Association charge a small amount as administrative charge for handling and processing of applications as was being done by the All India Nurses Association. All applicants had been approached to send Rs. 10/- each.

The Working Committee was further informed that State-wise lists of applicants were being prepared to be sent to State/Territorial Branches for scrutiny and verification although a number of applications were already being forwarded through respective State/ Territorial Branches.

***Decision*: 1: "The Working Committee approves the token charge of Rs. 10/- per applicant for allotment of Car/Scooter out of Public Utility Quota for doctors and directs that all those whose names have already been recommended for allotment of Car/Scooter be also asked to send this amount towards administrative charges for handling and processing of applications. It further approves of additional staff as necessary to meet this extra heavy administration liability."**

***Decision*: 2: "The Working Committee directs the Hony. General Secretary to continue his efforts in getting the Ministry of Heavy Industry to agree to receive applications and to forward the names of Government doctors recommended by the IMA for allotment of Car/Scooter to the respective State/Union Territory Government for the needful, out of Government Quota on a priority basis."**

***Decision*: 3: "The Working Committee approves the action taken by the Hony. General Secretary in the recommendation of doctors' names to the government for allotment of Car/Scooter on State-wise, region-wise and utility-wise basis keeping in view the various stipulations as advised by the Ministry of Heavy Industry."**

8) *IMA Federation of Specialists Organisation*:

The Working Committee felt concerned that although the federating units had been individually requested to join the proposed Federation, hardly any positive response had been received from any specialists association to the draft constitution of the IMA Federation of Specialists Organisations.

The Working Committee also noted that a meeting of the federating units had been called on 29.3.1974 for initiating action as under the draft constitution but only one association responded. It was pointed out that some Associations did not approve of the membership fees etc. and the inadequate representation to them on the Working Committee of the IMA and Central Council.

***Decision*: "The Working Committee directs the Hony. General Secretary to write once again to the specialists association as per list defined in the Draft Constitution of the I.M.A. Federation of Specialists Organisation for their acceptance to becoming a constituent of the IMA Federation as provided under its Constitution.**

Failing any positive reply within 6-8 weeks the Working Committee decides to start the IMA Federation on its own under a revised constitution if so necessary."

9) *Affiliation between E.S.I. Medical Practitioners' Association and Bengal State Branch, I.M.A.*

The Working Committee noted that the matter continued to be studied.

10) *Election Tribunal Expenses*:

***Decision*: 1: "On a suggestion by the Tamilnadu State Branch the Working Committee decides to obtain legal advice regarding the term "Parties" in Election Disputes."**

***Decision*: 2: "The Working Committee feels that the mode of meeting the expenses on travel etc. of the members of the Election Tribunal, is an administrative matter and its earlier decision to make the parties to election disputes at State level to pay such expenses, is in order."**

11) *Travelling Expenses*:

The Working Committee noted that although the recommendations of the Finance Standing Committee in relation to reduction of expenditure on travelling allowance to office-bearers and others had been circulated to State/Territorial Branches for their comments. the same were still awaited, in spite of reminders

12) *Family Planning*:

i) *Mass Sterilisation Camps and Incentives to Patients.*

***Decision*: "The Working Committee while noting the comments of Tamilnadu State Branch and some of its branches and some other branches decides to wait for response from all State/Territorial Branches on practices in their respective States before laying down guide lines as policy statement on the subject of Mass Sterilisation Camps and on Incentives to Patients Undergoing Sterilisation."**

ii) *Orientation Courses.*

The Working Committee noted that the question of both Central and States Governments giving financial assistance to the IMA for Orientation-cum-Training Courses in Family Planning was being followed out with little response.

iii) The Working Committee was informed that the President had written to the Union Minister of Health, but still a non-medical person had been appointed as Family Planning Commissioner in place of medical men who had held the post all along. It appeared some of the doctors were reported to have declined the offer.

iv) The Commissioner of Family Planning had written back about various matters discussed between the then Commissioner and the Hony. General Secretary. It appeared the Government was not very keen on the cooperation offered by the IMA and only lip service attention was being accorded to the IMA.

***Decision*: 1: "The Working Committee notes with regret the non-cooperative attitude of the Ministry of Health & F.P. in the matter of utilising the services of and involvement of doctors in general, in programmes associated with the promotion of F.P. It further is of view that it was time the matter was finally sorted out with the Government and the association then concentrate on its own programmes that are implementable within its own resources."**

***Decision*: 2: "The Working Committee directs the Family Planning Standing Committee to submit plans for a suitable programme by the IMA during the year 1974 which has been designated as the World Population Year by the United Nations."**

13) *Nationalisation of Health Services*:

The Working Committee noted that the President of U.P. State Branch has written back showing his displeasure at the decision of the Working Committee on his statements and Presidential Address etc. He had stated that unless the Working Committee withdrew its remarks, he would not attend its meetings. The

Working Committee did not approve of his assertion in this regard, and desired him to follow the decisions of the Association and identify himself with the policies of the Association.

The Working Committee noted that some branches under Tamilnadu State Branch had desired consideration of the question of nationalisation of health services again. The Working Committee did not accept the request and desired the branches to give their comments on the report of the Task Force of the IMA on the subject when the same was circulated.

14) *Confederation of Medical Associations in Asia and Oceania:*

The Working Committee noted that as per its decisions, the organisers of the Confederation had been informed of the I.M.A. becoming one of its Constituents.

15) *A.I.R. Commercial Broadcasting Service:*

The Working Committee noted that the four representatives of the Association (one in each zone) on the Zonal Advisory Council of the AIR Commercial Broadcasting Services had started their work and would be submitting their reports at periodic intervals.

Decision: "The Working Committee directs its representatives on the Zonal Advisory Councils of the AIR Commercial Broadcasting Service to coordinate their work with a view to establishing uniformity of views as well as rationalisation of words contents of advertisements specially in the fields of food and drugs etc. and to submit their reports at periodic intervals."

16) *Monopolies and Restrictive Trade Practices Commission, New Delhi:*

The Working Committee noted that the views of the IMA on the application of Joint Councils of India Pharmaceutical Trade in the matter of fixing of minimum retail prices of drugs etc. were compiled, based on the comments of the four IMA representatives viz. Dr. Sukomal Sen, Dr. M. A. Panwalla, Dr. M. A. Narsimhachar and Dr. P. C. Bhatla. The comments of the IMA on the above application were forwarded to the Commission. The hearing was fixed for 24th April 1974 and the Commission had been requested to allow T.A./D.A. to IMA representatives.

17) *Malaria Eradication Programme—Participation by Private Practitioners in the;*

The Working Committee noted that as per its request the Government of India in the Ministry of Health & F.P. (Directorate General of Health Services) had been assured of help and participation by private practitioners in the surveillance programme all over the country. The response from the Ministry was still awaited. It appeared that nowhere in any State, an approach had yet been made to the IMA Branches in this connection.

18) *Medical Council of India:*

Dr. Shantilal C. Sheth, President, Medical Council of India, informed the Working Committee that there was a move to have a common schedule for medical graduates and licentiates. It was also being considered to abolish reserved seats on the Medical Council for licentiates when a common schedule comes into being. The Working Committee agreed that once a common schedule for the two categories of doctors was established it would not be necessary to reserve seats in the Medical Council of India for the Licentiates.

The recent order of the Medical Council of India to derecognise certain medical colleges in the country on ground of poor standards came up for discussion. It was noted that some of these were colleges that also charged large sums as capitation fees. Two colleges in the list were Government Colleges that were found to have lower standards. The Working Committee expressed its concern over this matter and held the view that perhaps the Medical Council of India had good reasons to derecognise them. The Working Committee however, hoped that these colleges will take steps immediately to improve matters so that the careers of hundreds of students are not put into jeopardy.

ORGANISATION

2. i) *To receive reports on*—a) *Formation of Local Branches*; b) *Suspension of Branches*; c) *Revival of Local Branches*; d) *Branches declared defunct.*

a) *Formation of Local Branches:*

The formation of the following Local Branches since the last meeting of the Working Committee was approved:

Sl. No.	*Name of the Local Branch*	*No of Members*	*Date of Formation*
	ANDHRA PRADESH		
1.	Ramachandrapuram	6	1-10-1973
2.	Divi	8	1- 4-1974
	BENGAL		
1.	New Barrackpore Madhyamgram	6	1-10-1973
	BIHAR		
1.	Russera	8	1-10-1973
2.	Saharsa	26	1-10-1973
3.	Imamganj	8	1-10-1973
	GUJARAT		
1.	Botad	8	1-10-1973
	HARYANA		
1.	Kurukshetra	8	1-10-1973
2.	Kalka	7	1-10-1973
	HIMACHAL PRADESH		
1.	Mandi	7	1-10-1973
	KERALA		
1.	Munnar	12	1-10-1973
	MADHYA PRADESH		
1.	Kharsia	5	1-10-1973
2.	Mahasamund	9	1- 4-1974
3.	Satna	34	1- 4-1974
	MAHARASHTRA		
1.	Lasalgaon	5	1-10-1973
	MYSORE		
1.	Nipani	15	1-10-1973
	ORISSA		
1.	Bargarh	10	1-10-1973
2.	Kendrapara	6	1-10-1973
3.	Jatni	15	1- 4-1974
	PUNJAB		
1.	Giddarbaha	7	1- 4-1974
	RAJASTHAN		
1.	Udaipur	47	1-10-1973
	TAMILNADU		
1.	Karur	19	1- 4-1974

b) ***Suspension of Branches*:**

The suspension of the following branch of the Association since the last meeting of the Working Committee was approved:

Sl. No.	*Name of the Local Branch*	*Date of Suspension*
	HARYANA	
1.	**Sonepat**	**1-10-1973**

Regarding suspension of Branches the Working Committee noted that the State/Territorial Branches had been reminded not to routinise recommendation of suspension of branches.

***Decision* 1: "The Working Committee decides that for the election to the offices of the President and three Vice Presidents, ballot papers be not sent to branches that remain suspended till 7th July—the last date for sending the ballot papers."**

***Decision* 2: "The Working Committee recommends the following additions to the Rules and Bye-laws of the Association subject to their being circulated to their branches and duly approved by the Central Council as per Rules:—**

> ***Defination*: (a) "Valid List" means the list of members of a local branch who continue to be members and on behalf of whom the Local/State/Territorial Branch shall pay the HFC due in full till the names remain on such a list.**
>
> ***Bye-Law*: (b) A Valid List shall be sent by due date as specified in the Rules/Bye-laws of the Indian Medical Association by the local branch to the respective State/Territorial Branch and by the State/Territorial Branch to the Headquarters Office by the due date."**

c) ***Revival of Local Branches*:**

The revival of following local branches since the last meeting of the Working Committee was approved The branches had been last suspended from 1-10-1973

Sl. No.	*Name of the Local Branch Revived*	*No. of Members*	*Date of Revival*
	ANDHRA PRADESH		
1.	**Nalgonda**	**6**	1-10-1973
	BENGAL		
1..	**Rampurhat**	**8**	1-10-1973
	MYSORE		
1.	**Chikmagalur**	**64**	1-10-1973
2.	**Jamkhandi**	**25**	1-10-1973
3.	**Tumkur**	**76**	1-10-1973
	UTTAR PRADESH		
1.	**Fatehpur**	**17**	1-10-1973
2.	**Gola Gokaran Nath**	**5**	1-10-1973
4.	**Mathura**	**5**	1-10-1973
3.	**Khurja**	**9**	1-10-1973
5.	**Pilibhit**	**17**	1-10-1973
6.	**Rudrapur**	**7**	1-10-1973

d) ***Branches declared Defunct*:**

The action of the Hony. General Secretary in declaring defunct the following local branches since the last meeting of the Working Committee, was approved;

Sl. No.	*Name of the Local Branch*	*Date from which Defunct*
	DIRECT BRANCH	
1.	**Bombay West Suburban (Direct) Branch**	**1-10-1973**
	BENGAL	
1.	**New Barrackpore Madhyamgram**	**1-10-1972**
	BIHAR	
1.	**Russera**	**1-10-1972**
2.	**Saharsa**	**1-10-1971**
	MADHYA PRADESH	
	1. Stana—1-4-1970, 2. Guna, 3. Vidisha, 4. Barwani, 5. Dewas, 6. Dhar, 7. Jhabua, 8. Rajgarh, 9. Balaghat, 10. Chhindwara, 11. Damoh, 12. Hoshangabad, 13. Katni, 14. Raigarh, 15. Jagdalpur, 16. Panna, 17. Chhatarpur, 18. Chahdol, 19. Tikamgarh, 20. Dhamtari and 21. Sidhi—1-10-1973.	
	RAJASTHAN	
1.	**Udaipur**	**1-10-1972**

2. ii) *To consider the remarks/comments of the State/ Territorial Branches of the IMA on the report of meetings of (i) Disciplinary Action Committee of IMA and (ii) Reorganisation of Branches Committee, IMA held at Hubli on December 24-25, 1973.*

(i) *Disciplinary Committee*:

The Working Committee noted that the comments and suggestions from the State/Territorial Branches on the report of the Committee were awaited.

***Decision*: "The Working Committee directs the State/Territorial Branches to expedite their comments to enable it to take necessary action and finalise at its next meeting its recommendations and lay down guide lines on disciplinary action against members, who defy and/or violate rules, regulations, decisions and directives of the Association."**

(ii) *Reorganisation of Branches and Safeguarding Privileges of Members*:

The Working Committee noted that the comments of most of the State/Territorial Branches have not been received.

***Decision*: "The Working Committee directs the State/Territorial Branches to expedite their comments etc. on the recommendations of the committee on the reorganisation of branches and safe-guarding privileges of members circulated earlier to enable the Working Committee to finalise its recommendations and suggest amendments etc. to Rules/Bye-laws if necessary."**

2. (iii)

A) *To reconstitute Standing Committees of IMA and to review their terms of reference*:

The Working Committee reviewed the terms of reference of Standing Committees. The existing Standing Committees were reconstituted (as per list appended) after incorporating the changes in membership as under:

1) *National Plans Standing Committee:*

Members Retired—1) Dr. M. M. S. Siddhu (Lucknow); 2) Dr. N. N. Roy Choudhury (Calcutta); *Members Elected*—1) Dr. M. M. S. Siddhu (Lucknow); 2) Dr. Bhaskar Rai Choudhury (Calcutta).

2) *Medical Education Standing Committee:*

Members Retired—1) Dr. A. K. N. Sinha (Patna); 2) Dr. N. Satyanarayana (Vijayawada); *Members Elected*—1) Dr. A. K. N. Sinha (Patna); 2) Dr. N. Banerjee (Calcutta).

3) *Insurance Standing Committee:*

Members Retired—1) Dr. M. G. Bhide (Poona); 2) Dr. A. P. Shukla (Ahmedabad); 3) Dr. Deben Ghosh (Kankurgachi); *Members Elected*—1) Dr. M. G. Bhide (Poona); 2) Dr. A. P Shukla (Ahmedabad)—Convener; 3) Dr. Sudhir De (Calcutta).

4) *IMA Buildings Standing Committee:*

Members Retired—1)Dr. S. S. Ajgaonkar (Bombay); 2) Dr. Sushil Kumar Banerjee (Calcutta); *Members Elected*—1) Dr. M. G. Bhide (Poona); 2) Dr. A. K. Roy (Calcutta).

5) *Family Planning Standing Committee:*

Members Retired 1) Dr. R. K. Nanavaty (Ahmedabad); 2) Dr. G. P. Dutta (Calcutta); *Members Elected*—1) Dr. R. K. Nanavaty (Ahmedabad); 2) Dr. Dilip Roy (Calcutta).

6) *Finance Standing Committee:*

Members Retired—1) Dr. S. C. Mitra (Calcutta); 2) Dr. N. Banerjee (Calcutta); *Members Elected*—1) Dr. S. C. Mitra (Calcutta); 2) Dr. Sushil Kumar Banerjee (Calcutta).

7) *Standing Committee on Industrial Medicine:*

Members Retired—1) Dr. Biswajit Kumar Roy (Calcutta); 2) In place of vacancy caused as a result of demise of Dr. V. Krishna Murty (S. Arcot) Dr. Ananthanarayanan (Kerala) was elected; *Member Elected*—1) Dr. Biswajit Kumar Roy (Calcutta).

8) *Standing Committee on Rural Health:*

Members Retired—1) Dr. G. V. Joshi (Hubli); 2) Dr. Samar Rai Chaudhury (Calcutta); *Members Elected*—1) Dr. N. L. Sastry (Vijayawada); 2) Dr. B. D. Kalgutkar (Bombay).

9) *Standing Committee on Medical Protection Insurance Scheme:*

Members Retired—1) Dr. Deben Ghosh (Kankurgachi); 2) Dr. V. K. Toraskar (Bombay); 3) Dr. (Mrs.) Lalita Rao (Bombay). *Members Elected*—1) Dr. Anjali Rai Chaudhury (Garden Reach); 2) Dr. Suresh C. Sheth (Bombay West Suburban); 3) Dr. (Mrs.) Lalita Rao (Bombay).

10) *Public Relation & Medical Ethics Standing Committee:*

Members Retired—1) Dr. P. R. Trivedi (Ahmedabad); 2) Dr. K. P. Mehrotra (Kanpur). *Members Elected*—1) Dr. P. R. Trivedi (Ahmedabad); 2) Dr. B. Rama Rau (Madras).

11) *Medical & Health Services Standing Committee:*

Members Retired—1) Dr. N. K. Misra (Patna); 2) Dr. S. D. Sharma (Goa); 3) Dr. K. K. Das (Bengal); 4) Dr. G. S. Mutalik (Poona); 5) Dr. G. Chakravarty (Tripura). *Members Elected*—1) Dr. V. S. Achar (Karnataka); 2) Dr. R. P. Khera (Delhi); 3) Dr. I. Chandrasekhar (A.P.); 4) Dr. M. I. Jahan (Assam); 5) Dr. Navin Chandra (Kanpur).

12) *Therapeutic & Appliances Standing Committee:*

The President was authorised to add two members to the existing five members of the Committee.

2. (iii)

B) *Governing Council of the IMA College of G.Ps*

The following members were elected to represent the Working Committee on the Governing Council of the IMA College of G. Ps:—1) Dr. T. M. Kumaraswami; 2) Dr. R. A. Bhagwat; 3) Dr. J. V. R. Sarma; 4) Dr. K. P. Mehrotra; 5) Dr. V. M. Bahulkar.

2. iv) *To receive report of the meeting of the IMA Secretaries held at Hubli on December 26, 1973.*

The report as circulated was noted.

The Working Committee, also noted that as a result of the Hony. Secretary of the JIMA having gone on leave due to personal reasons and Dr. Satyendu Kundu, Hony. Joint Secretary, IMA looking after his work in his absence and due to disturbing situation as a result of difficulty in procuring paper for production of the Journal, the Journal Committee found some difficulty in the office routine

Decision: 1: "The Working Committee approves the appointment of Dr. Satyendu Kundu, Hony. Joint Secretary, IMA to act also as officiating Hony. Secretary, JIMA till such time as Dr. P. K. Chaudhury was able to attend."

Decision: 2: "The Working Committee decides that the Journal Committee may send only one addressograph list to the branches latest by end of June 1974. This decision will be operable for the current year only."

2. v) *To approve the revised Rules and Bye-laws of the Maharashtra State Branch, I.M.A.*

Decision: "The Working Committee approves the revised Rules & Bye-laws of the Maharashtra State Branch as verified by the Hony. General Secretary."

vi) *To approve the revised Rules of the Tamil Nadu State Branch, I.M.A.*

Decision: "The Working Committee approves the revised Rules & Bye-laws of the Tamil Nadu State Branch as verified by the Hony. General Secretary."

vii) *To approve the revised Rules and Bye-laws of the Karnataka State Branch, I.M.A.*

Decision: "The Working Committee approves the revised Rules & Bye-laws of the Karnataka State Branch as verified by the Hony. General Secretary."

viii) *To approve the revised Rules and Bye-laws of the Punjab State Branch, I.M.A.*

Decision: "The Working Committee approves the revised Rules & Bye-laws of the Punjab State Branch as verified by the Hony. General Secretary."

ix) *To determine the status of—(a) Chandigarh Territorial Branch; (b) Himachal Pradesh State Branch; (c) Nagaland State Branch, IMA vis-a-vis their representation on the Working Committee.*

Decision: "The Working Committee directs that for the year 1973-74 as per revised Rule 6 of the IMA Rules & Bye-laws, the following Branches shall not act as State/Territorial Branches and shall not have representation on the Working Committee:

(a) Chandigarh Territorial Branch (Membership 99, HFC received: Nil); (b) Himachal Pradesh State Branch (Membership 18, H.F.C. received: 18 members); (c) Nagaland State Branch (Membership 60, H.F.C. received: Nil)'.

x) *Decision*: "The Working Committee considers the request of the Tamil Nadu State Branch for Hony. Membership of the Association of one of its senior members and directs that relevant Bye-laws for such membership be further clarified to meet such requests as per Rules & Bye-laws of the Association."

FINANCE

3 i) *To pass audited accounts of (a) Headquarters Office; (b) Journal Office for the quarter ended December 31, 1973.*

a) Headquarters Office:

During the discussions the following decisions were made.

Decision: 1: "The Working Committee duly adopts the audited accounts of the Headquarters Office, IMA for the quarter ending December 31, 1974 as proposed by Dr. S. K. Kar and seconded by Dr. S. K. Parashar.

Decision: 2: "The Working Committee approves the action of the Hony. General Secretary in appealing to the members of the IMA for support to the IMA NEWS by paying yearly subscription of Rs. 5/- each. Though this is a voluntary contribution, the Working Committee exhorts all the individual members who were getting complimentary copies to become regular subscribers. It further directs that complimentary copies should continue to be sent to the Local Branches, Institutions/Medical Colleges, Government Circles and such other organisations etc. as desired necessary."

Decision: 3: "The Working Committee approves and endorses the compulsory charge of Rs. 10/- per applicant for Priority Allotment of a Car/Scooter out of Public Utility Quota in order to meet the administrative charges in the handling and processing of the applications. It further directs the Hony. General Secretary to arrange to collect this nominal charges also from all those who had been already recommended by the Association for allotment of vehicles and have either purchased the vehicles and/or are awaiting allotment of the same by the Government."

Decision: 4: "The Working Committee decides that no refund is due to the West Suburban Branch (Direct) for any double payment made towards H.F.C. on account of any of its members."

ii) *Journal Office*:

Decision: "The Working Committee duly adopts the audited accounts of the JIMA for the quarter ending December 31, 1974 as proposed by Dr. R. Ananthanarayanan and seconded by Dr. O. P. Kulshrestha.

3. ii) *To review the position of H.F.C.—(a) for past year; (b) for the year 1973-74.*

a) For past year:

The Working Committee noted with concern that in spite of reminders the State/Territorial Branches concerned had not yet cleared the long standing arrears.

Decision: "The Working Committee directs the concerned State/Territorial Branches to immediately clear the past years' H.F.C. arrears in consultation with the Headquarters."

b) For current year:

The Working Committee noted the amount realised to date towards H.F.C. for the 1st half of the current year. It was critical that H.F.C. payments were reaching the Headquarters rather very late thereby causing lot of dislocation in disbursing amounts where necessary.

Decision: "The Working Committee directs the Local Branches to collect the subscription from members as early as possible and to remit the corresponding H.F.C. on their behalf to the respective State/Territorial Branches which in turn must immediately forward the amount to the Headquarters Office after retaining their share out of the HFC received. In no case the payments of H.F.C. should reach the Headquarters Office later than in October and April for the 1st half year and 2nd half year respectively."

3. iii) The Working Committee reviewed its earlier decision regarding authorising the Hony. General Secretary to draw an amount from any fund of the Association and to give the same as an accommodation loan to the JIMA for purchase of paper if necessary, the loan being refundable before 30th September 1974.

Decision: "The Working Committee decides that no withdrawal be made from the funds of the Association which have been created for specific purposes except for the purpose for which they are created. If necessary, the funds if available, standing in the accounts of the IMA College of General Practitioners may be utilised for advancing to Journal Office for purchase of paper only."

BENEVOLENT FUND

4. i) *To consider the suggestion of the Bengal State Branch of IMA that the IMA Benevolent Fund be decentralised and kept in a separate account in State/Territorial Branches.*

Decision: 1: "The Working Committee does not agree with the suggestion of the Bengal State Branch that "The IMA Benevolent Fund be decentralised and kept in a separate account in State/Territorial Branches" in view of the fact that the fund as per Rules was being maintained State-wise for allotment on the recommendation of the State/Territorial Branches the Fund being a central fund and subject to management as per Rules/Bye-laws."

Decision: 2: "The Working Committee directs that although much of the work will continue to be done by postal circulation, the Committee of Management of the IMA Benevolent Fund should meet at least once a year preferably at/near the time of the Annual All India Medical Conference."

ii) *To consider the following resolution as proposed by Dr. H. N. Shivapuri (Lucknow) "This meeting of the Working Committee resolves that the Benevolent Fund Standing Committee be abolished as it has been found useless and redundant."*

The Working Committee did not agree with the above suggestion.

Decision: "The Working Committee does not agree with the above resolution as proposed by Dr. H. N. Shivapuri (Lucknow)."

IMA COLLEGE OF GENERAL PRACTITIONERS

5. i) *To receive report of the meeting of the Governing Council of the IMA College of General Practitioners held at Hubli on December 26, 1973.*

Noted.

ii) *To receive report of the Annual Meeting of the IMA College of General Practitioners held at Hubli on December 26, 1973.*

Noted.

iii) *To consider nominations for Fellowship of the College.*

The following nominations duly processed were approved for Fellowship of the College: 1) Dr. G. Mathew Nedumthollil (Alwaye); 2) Dr. Pravat Kumar Mitra (Birbhum); 3) Dr. Dayamay Manna (Howrah); 4) Dr. Nakuleshwar Halder (Howrah); 5) Dr. Sujan Kumar Das (Titagarh); 6) Dr. Monishanker Banerjee (Calcutta).

5. iv) *To receive the report of the 6th Annual Convocation of the College held at Hubli on December 28, 1973.*

Noted.

v) *To consider proposals for future activities of the College and its Faculties.*

The Working Committee noted that on the occasion of the mid year meeting of the Governing Council of the College it was planned to organise an Academic Seminar on "Contents of Vocational Training Programme for General Practice".

WORLD MEDICAL ASSOCIATION

6. *To nominate a delegation of IMA for the XXVIII World Medical Assembly of WMA to be held at Stockholm (Sweden) on September 1-6, 1974.*

Decision: "The Working Committee authorises the President, IMA to nominate the IMA DELEGATION to the XXVIII General Assembly of the W.M.A.".

27th General Assembly, WMA:

The Working Committee noted that Dr. A. B. Mukerjee, Leader of the IMA delegation to the above Assembly had opined that IMA should continue its membership of the W.M.A.

Dr. A. B. Mukerjee was of the opinion that the South African Medical Association was moving their Government in South Africa against practice of apartheid in South Africa.

Decision:1: "The Working Committee decides that the IMA continue its membership of the W.M.A.".

Decision: 2: "The Working Committee directs the Hony. General Secretary to write to the South African Medical Association for direct information on the subject of apartheid and the role of the South African Medical Association in this regard particularly with reference to practice of apartheid in medical profession and in medical care."

CENTRAL COUNCIL

7. *To consider/take necessary action on recommendations of the Central Council dated December 26-27, 1973.*

The Working Committee received a note by the Hony. General Secretary, IMA on the above and noted its contents which gave details of action taken and/or under consideration on the various points raised.

MEDICAL EDUCATION

8. i) *To receive reports of the meetings of the Medical Education Standing Committee of IMA held at Bombay on 16.9.73 and at New Delhi on 9.4.74.*

The Working Committee noted the report of the meeting of the Committee held on 16.9.1973.

8. ii) *To consider the proposal of Commonwealth Medical Association for standardisation of medical education to facilitate reciprocity of medical degrees in Commonwealth countries.*

The Working Committee noted that a note based on the report of the Medical Education Standing Committee giving the views of the Association in the matter of proposal of C.M.A. for standardisation of medical education to facilitate reciprocity of medical degrees in Commonwealth countries had been sent to the C.M.A.

The draft of the above was duly corrected specially concerning the specialisation courses like M.C.H. being offered to postgraduate degree holders in various parts of the country.

iii) *Medical University in Karnataka*

The Working Committee noted that the Medical Education Standing Committee was studying the proposed Bill as moved in the Karnataka Assembly for establishing a Medical University in Karnataka and the comments of the Karnataka State Branch, IMA in this regard.

DOCTORS IN SERVICE

9. i) *To receive a report of the meeting of the Task Force of IMA held at New Delhi on July 4, 1973.*

The Working Committee was informed that the report would be circulated soon.

ii) *To receive a report of the meeting of the High Power Committee of IMA held at New Delhi on November 17, 1973 (Charter of Demands already circulated).*

The Working Committee noted that a draft of the Charter of Demands based on the discussion held during the High Power Committee meeting held in November 1973, had been circulated to State/Territorial Branches, Action Committee, Medical Education and Rural Standing Committees, IMA Task Force and High Power Committee and some suggestions and comments were duly incorporated in the final draft of the Charter of Demands. Sufficient copies of the Charter of Demands had been sent to State/Territorial Branches for favour of submission to State Governor, Chief Minister, Health Minister and others incorporating therewith copies of Charter of Demands as were pertinent to their respective States.

The final draft was being sent to the Prime Minister direct as well as through the Union Minister of Health and Family Planning.

iii) *Full member status to IMA on the Central Council of Health.*

The Working Committee noted that the Union Minister of Health had been approached to accord full member status to IMA on the Central Council of Health in place of usually the President being invited to attend a meeting of the Central Council of Health, even if this needed change of rules about Constitution of the Council.

9. *Uniformity of pay, status/service conditions of Doctors:*

The Working Committee noted that during the strike by Junior Doctors in Delhi and other places in the country, the Health Ministers/Chief Ministers in the States and Union Minister of Health and Family Planning had been requested to meet and decide in unison in bringing about uniformity of pay, status and service conditions of doctors in service including junior doctors in the country. The Ministry of Health and Family Planning had also been requested to put this item on the agenda of the Central Council of Health, which was scheduled to meet in April 1974.

It was reported by Dr. Ved Prakash, President, IMA who attended the meeting of the Central Council of Health held on April 5-7, 1974 that this matter was not considered as the structure of the meeting had been changed and a combined meeting of the Central Council of Health and Central Family Planning Council was held in which attention was paid to a few subjects which were discussed in groups.

It appeared that while uniformity had been achieved in the emoluments of junior doctors in the employment of Central Government and Union Territories, there still existed great disparities between the pay scales as prevalent in different States. The Working Committee however noted that the views of the Association had been compiled in the Charter of Demands incorporating all suggestions and efforts were afoot to approach the Central and State Governments to a uniform decision in this regard.

9. iv) *Junior Doctors and Service Doctors:*

The Working Committee reviewed the situation in the country and noted that all efforts had been made by the Headquarters Office and the State/Territorial and other branch offices in the matter of rendering all help and assistance to junior doctors. A close liaison had been kept but it was apparent that not much confidence was shown in the IMA by the junior doctors' organisations which had taken independent decisions without in any way taking the IMA into confidence. This tendency appeared to be very unfortunate as the service doctors associations also followed this technique but when the matters looked difficult they approached the IMA to look after the interest of their doctors. The position of the IMA became embarrassing at times for the decisions taken by doctors outside the fold of IMA, in which IMA had no hand whatsoever.

The Action Committee of the IMA and the State Action Committees had functioned ceaselessly and done whatever possible to get the grievances of junior doctors and other doctors in service ameliorated.

The Working Committee received and noted the report of the Action Committee and also the detailed note by the Hony. General Secretary on the strike by junior doctors in Delhi and other places.

State Health Services Doctors Movement:

The situation in Bengal as a result of the cease-work call given by the Confederation of Government Doctors and Engineers was discussed at length and the role of IMA Bengal State Branch in rendering assistance to doctors as well as in getting their problems attended to by the Government.

The State Health Services Doctors had to observe cease-work except emergency service for 41 days. The Working Committee noted that this struggle was an unprecedented one launched by the permanent Government Medical Officers. I.M.A. Bengal State Branch held a number of meetings of the profession and others. State Working Committee was in continuous session. Meeting of the State Council was held and meetings of the citizens were organised. The memorandum, which was widely circulated, highlighted the three main demands:

1) Appointment of technical and medical officers as Heads of Government technical/medical offices and public undertakings.

2) Restructuring of the Secretariat and technical and medical departments with technical/medical officers at key positions.

3) Parity of pay scales and status at all levels amongst technical/medical and administrative services (I.A.S.).

The entire matter continued to be studied by the Action Committee, IMA, which also met in an emergency session at Calcutta and met the Chief Minister to impress upon him the urgency of starting dialogue with the striking doctors to which he agreed

It was also noted that the State Health Services Doctors in U.P., Bihar and other States were also restive in regard to non-fulfilment of their long-standing grievances of poor service and working conditions.

The following recommendations were made:

1. The Working Committee confirms that IMA is not in favour of associating with any other groups or Associations of doctors unless the latter show confidence in the leadership of the Association in writing and follow in spirit and deed the decisions of the Association.

2. "The Working Committee notes that before negotiating on behalf of any group of doctors, the association must keep in mind as to how far it can go and support the demands of those doctors and if IMA's decisions are floutea at any stage, to withdraw its support forthwith."

3. "The Working Committee directs that before embarking upon any help, assistance and support to groups/association of doctors outside the folds of IMA, the financial and other implications of its active support and identification with the group/association's programmes, must be seriously considered and under no circumstances any financial liabilities undertaken unless it is for promotion of policies of the IMA.

The Working Committee further directs that finances for the purpose will be raised locally only."

4. "The Working Committee advises the State/Territorial Branches to make serious and meaningful attempts to further improve relationship between private practitioners and the doctors in service with a view to establishing solidarity amongst the profession in general."

5. "The Working Committee advises the State/Territorial banches and their Action Committees to keep constant liaison with the doctors working in Government and non-governmental hospitals/institutions with a view to improving doctor-patient relationship in the community:"

6. "The Working Committee advises the State/Territorial Branches to activise the State "Junior Doctors Forums" and the "Private Practitioners' Standing Committees" and attempt to identify their specific problems and take such action as deemed

necessary to inspire confidence in the different categories of doctors."

9. v) *Doctors in service of Public Undertakings:*

The Working Committee noted that the Committee appointed by it to go into the question of service conditions, pay scales, status, etc of doctors employed in the Public Undertakings had commenced its work and was in the process of collecting relevant information both from the Government and Undertaking sources as well as from the State/Territorial Branches. Dr. P. K. Dutta, the Chairman of the Committee had visited certain Public Undertakings for an on-the-spot study.

Decision: "The Working Committee desires the State/Territorial Branches to take expeditious measures to render all help and assistance to the Committee on Doctors in Service of Public Undertakings to help it to consider the matter at the earliest and make its recommendations thereon."

9. vi) *To receive a report on the meeting of the Committee on Health Services in the Coal Mines Industry held on March 24, 1974 at Asansol.*

The report was noted.

vii) *To receive report on the meeting of the Medical and Health Services Standing Committee,IMA held at New Delhi on April 8, 1974.*

The report was noted.

viii) *Victimisation of Government doctors for participating in bona-fide activities of the IMA*

The Working Committee took up the case of Dr. T. P. Jain, Prof. and Head of Department of Preventive and Social Medicine, S. N Medical College, Jodhpur who was also the President of Jodhpur Branch of IMA. Dr. Jain had received a letter from the Secretary to the Government of Rajasthan that the Government did not appreciate his action in presiding over a meeting in which the State Government was criticised and a resolution passed calling upon the doctors to wear black bands on their arms and lead a procession of doctors and medicos in sympathy with the striking students on 2.10.1972 at Jodhpur. Dr. Jain's action was described as violative of the Rajasthan Civil Services (Conduct) Rules 1971 and had incurred the displeasure of the Government. Subsequent to this letter Dr. Jain was transferred from Jodhpur to Udaipur as an act of victimisation.

The Working Committee took serious note of this happening and passed the following resolution:

"The Working Committee notes with regret the reported action against Dr. T. P. Jain, President, Jodhpur Branch, IMA by the Rajasthan Government for his bonafide participation in the IMA activities.

This Meeting of the Working Committee urges upon the Government of Rajasthan to withdraw and expunge from all records, the remarks passed against Dr. T. P. Jain.

It was further resolved that the Central and State Governments be urged upon to see that the doctors in Government Service discharging their duties as office-bearers of the IMA be not penalised or victimised for their *bonafide activities*."

INSURANCE

10. *To receive a report on the Medical Protection Insurance Scheme of IMA for the year 1972-73.*

The Working Committee noted that the Standing Committee had yet to submit the report of the preceeding year. There appeared to be some difficulty in getting the exact details of figures etc. from the New India Assurance Co. Bombay.

Decision: 1: "The Working Committee directs the the Chairman and Convener of the IMA Standing Committee on Medical Protection Insurance Scheme to submit the report of the scheme for the previous year as well as the half yearly report of the current year."

Decision: 2: "The Working Committee decides to take energetic measures with a view to publicising the Medical Protection Insurance Scheme among the members of the Association."

DOCTORS IN PRIVATE PRACTICE

10-A.

The Working Committee decided to constitute a "Standing Committee on General Medical Practitioners" to go into the various problems facing this section of the medical profession.

CONFERENCES ABROAD

11. i) *To nominate IMA delegations for the following:*

142nd Annual meeting of the British Medical Association, Kingston Upon Hull, July 10-18, 1974.

123rd Annual Convention of American Medical Association, Chicago, Illinois, June 22-26, 1974.

Decision: "The Working Committee authorises the President, IMA to nominate the IMA Delegation to both the 142nd Annual Meeting of the British Medical Association and 123rd Annual Convention of the American Medical Association."

ii) *To receive reports of the following:*

a) *3rd National Conference of Bangladesh Medical Association, Dacca, March 8-11, 1974.*
—Report of Dr. S. C. Sen (Delhi):

b) *87th Anniversary Session of Sri Lanka Medical Association, Colombo, March 27-30, 1974.*
—Report of Dr. B. Rama Rau (Madras).

(a) The report by the Leader of IMA Delegation, Dr. S. C. Sen, Past President, IMA, as circulated was noted.

Decision. "The Working Committee directs the Hony. General Secretary to explore the possibility of establishing mutual affiliation between the IMA and the Bangladesh Medical Association."

(b) The report by the Leader of IMA Delegataion, Dr. B. Rama Rau, President, Tamilnadu State Branch, IMA was awaited.

iii) *Commonwealth Medical Association Council Meeting, Jamaica—April 1974.*

It was pointed out that Dr. A. K. N. Sinha, one of the regional Vice-Presidents of the Commonwealth Medical Association and the official representatives of the IMA on the Council of the C.M.A. was to attend the meeting of the Council of C.M.A. at Kingston, Jamaica on April 15-20, 1974. In addition to various items of agenda for which necessary help had been gathered by him from the Headquarters Office, he desired the Association to authorise him to extend invitation on its behalf to the C.M.A. to hold its next Council Meeting in India (New Delhi).

Decision: "The Working Committee authorises, Dr. A. K. N. Sinha, its representative on the Council of the C.M.A. to invite the next Council meeting of the Commonwealth Medical Association in 1976 to be held at New Delhi (India).

In the event of the IMA's invitation being accepted by the C.M.A. the Working Committee further nominates Dr. A. K. N. Sinha, Past President, IMA to the office of the President-elect of the C.M.A. for the term 1974-76 followed by the term of President of the Commonwealth Medical Association 1976-78 by virtue of which he will preside over the Council meeting of the C.M.A. if held at New Delhi in 1976"

12. i) *To note the arranagements for the XVII--IMA Study Tour—U.S.A.—CANADA (June 8-22, 1974).*

The Working Committee noted that there was satisfactory response from the members and that the dates of the official tour had been modified to enable the participants to attend the 123rd Annual Convention of the American Medical Association (June 22-25, 1974 at Chicago).

The Working Committee also noted that as per its earlier decisions about 14 travel agencies were approached for suggesting programmes etc. for such Study Tours by the Association. There was hardly any response and representatives of two agencies who came for discussions failed to suggest any concrete programmes. It was also noted that only the official travel agents of the Association had suggested a programme, which was accepted. It was ensured that hospital visits would be arranged specially at the Methodist Hospital Brooklyn, John Hopkins Institutions at Baltimore, Canadian College of Family Physicians at Toronto and hospitals at Chicago and the Annual Convention of American Medical Association at Chicago.

ii) *Study Tours within the country.*

The Working Committee received information from Dr. J. V. R. Sarma about the proposed study tour of Southern States being undertaken by the A. P. State Branch/A.P. State Faculty of IMA College of General Practitioners in May 1974. The participation would be open to members of the IMA.

Decision: "The Working Committee approves of Study Tours within the country organised by the Association/State/Territorial Branches of the Association and expects all branches of IMA to extend help, assistance and co-operation to participants of such tours who visit their towns."

AWARDS

13. a) To select subjects/appoint assessors for—
    - i) *Dr. C. S. Thakar Oration Award of IMA —1974.*
    - ii) *Medical Education and Research Award of IMA.*
    - iii) *Medical Students Essay Contest of IMA —1974.*
    - iv) *Medical Education and Research Award of IMA for Young Doctors—1974.*
    - v) *IMA Dr. D. N. Dutta Award in Cardiology for 1974.*

The Working Committee made the following decisions:

1) The Awards be given in alternate years so that three are given in one year and the other two or three in the other year. Prize in each case would thus be two years' interest on the fund allocated for the award and there would be time enough for the winning entries to be read at the Annual Conference if these are only three and not five or six.

2) There should be better publicity for the awards and medical colleges and the various medical journals besides our own should be requested to give adequate publicity to these Awards.

3) For the year 1974 the following three Awards be announced immediately and the candidates advised to send entries before the end of October 1974. The subjects for the three Awards were also given as below:

i) *Medical Education and Research Award of the IMA:*
Subject: "Change in Pattern of Medical Education in context of the country's need today."

ii) *Dr. D N. Dutt Award of the IMA on Cardiology:*
Subject: "Need of Cardiological Intensive Care Unit."

iii) *Medical Education and Research Award of the I.M.A. for Young Graduates:*
Subject: "Internship Programme--Suggestions for Improvement."

13. B) *To receive the comments of the State/Territorial Branches of IMA and to consider the recommendations of the IMA Committees for Membership Trophy, for Gold Medal of IMA for Roll of Honours.*

The Working Committee noted that the comments of the State/Territorial Branches had yet to be received. The consideration of the item was therefore postponed to next meeting.

IMA BUILDINGS

14. *To receive a report of the meeting of the IMA Buildings Standing Committee held at New Delhi on April 9, 1974.*

The report of the Committee held a day earlier being not ready, the Hony. General Secretary gave a verbal report and the Working Committee noted the following:

i) The bills for air-conditioning plant erection and the civil works connected therewith were with the architects who had inspected the same and their certificate of verifications of bills was awaited before final payment was made.

ii) Negotiations with the present tenants M/s Pfizer Ltd. were continuing with a view to renewing of rental lease on terms mutually acceptable by which the tenants would advance interest free money to be adjusted against rent every month—the money advanced being utilised to clear the loan account with M/s Syndicate Bank as well as provide for financial commitment towards premium for getting the premises (rented portion) commercialised, for which an application had been made to the authorities and the matter was being pursued.

iii) Suggestions for improvement of facilities at the IMA House, New Delhi as made by the Hony. Architect and also by the members of the Standing Committee were being looked into.

14. iv) The Hony. Secretary, JIMA had been requested to submit plans of the proposed building to be purchased by the Association at Calcutta to house the office of the J.I.M.A. along with the proposed structural changes necessary, phases of construction of a new building etc. and the economics involved therein, as well as the position of the tenants numbering ten now and later when a new building might be constructed etc. This information was required to enable the Finance Standing Committee and the Buildings Standing Committee to plan for raising the amount, if the scheme was considered worth pursuing.

The Working Committee noted that the President, Hony. General Secretary and the Chairman of Finance Standing Committee had visited Calcutta and seen the buildings offered for sale by L.I.C. They waited for the details as above to submit their report in the matter.

ADMINISTRATION

15. (A) *To consider matters relating to the office of JIMA, Calcutta.*

1) *To ratify the decision of the Journal Committee, dismissing Dr. Sujit Dhar, Chief Asstt. Editor, from the services of the Journal of the Indian Medical Association.*

Decision: "The Working Committee ratifies the decision of the Journal Committee, JIMA in dismissing Dr. Sujit Dhar, Chief Asstt. Editor, JIMA, from the services in the office of the Journal of the Indian Medical Association."

2) *To apprise about the crisis due to non-availability of news-print faced by the Journal.*

The Hony. Editor, Dr. A. B. Mukerjee, apprised the members of the difficulty being experienced in the availability of news-print for the publication of the JIMA. He stated that in spite of efforts made by the Journal Office and the Hony. General Secretary, I.M.A., there appeared to be little chance of relief specially with reference to imported paper. He further stated that to run the Journal it might be necessary to make local purchase at very exorbitant prices in view of great price hike, for which the Journal Office had already requested the Headquarters Office for advancing and making available sufficient funds which the Working Committee had earlier approved.

The Hony. General Secretary informed that it was not possible to advance any amount from the specific funds of the Associataion. However, efforts would be made to give advance from the College account which would be adjusted towards H.F.C. quota payable to JIMA for the current year.

(B) *To consider matters relating to the Headquarters Office of I.M.A.*

1. The Working Committee noted that as per its earlier decision the services of the two clerks at the IMA Headquarters Office viz. Shri J. N. Datta and Shri I. S. Dewan, had been terminataed and their pay, provident fund and other accounts settled.

2. The Working Committee noted that the Hony. General Secretary had requested the President, IMA to appoint a Special Committee to look into the working of the IMA Headquarters Office. The President stated that such desire had been expressed by a couple of other members to him personally also. He had appointed the following members to constitute a Special Domestic Committee to go into the question with wide powers and specially in the matter of—

a) To assess the work load and the staff pattern at the IMA Headquarters and the Journal Office.
b) To suggest ways and means to improve efficiency of the office.
c) To lay down administrative guide-lines for use at these offices.

Members of the Special Domestic Committee:

1. Dr. P. K. Dutta, Sr. Vice-President, IMA—*Chairman.*
2. Dr. Bhola Nath, Past President, IMA & Chairman, Finance Standing Committee, IMA.
3. Dr. A. K. N. Sinha, Past President, IMA.
4. Dr. P. R. Trivedi, Past President, IMA.
5. Dr. B. Rama Rau, President, Tamilnadu State Branch, IMA, and Member, Working Committee, IMA.
6. Dr. Sushil Banerjee, Hony. . State Secretary, Bengal State Branch, IMA and Member, Working Committee, IMA.

The report of the Committee was presented by its Chairman, Dr. P. K. Dutta, Sr. Vice-President, IMA.

Decision: 1: "The Working Committee notes the report and agrees fully with the findings and recommendations of the Committee."

Decision: 2: "The Working Committee notes with satisfaction that the working of both the offices of the Association—IMA Hqrs. and JIMA was in order, and all efforts were being made to further streamline the working."

Decision: 3: "The Working Committee approves of the action taken by the Hony. General Secretary/ Hony. Joint Secretary at the Hqrs. and the Hony. Editor/Hony. Secretary, JIMA in the matter of maintaining discipline in the respective offices. It further authorised the appointing authority in each office to deal with all such administrative matters as necessary, in consultation with the President, IMA, as recommended by the Special Domestic Committee".

Decision: 4: "The Working Committee approves of the following recommendations of the Special Domestic Committee appointed by the President, IMA to look into the working of the offices of the Association viz. Headquarters, IMA and J.I.M.A.:

a) The appointing authority at the offices of the Association should be charged with the powers to take action as deemed necessary in consultation with the President, against any member of the staff, including termination of services of any member of the staff, which should be communicated to the Working Committee at the subsequent meeting. This was necessary to maintain discipline and proper conduct by the staff.

   In no case any communication by a member of the Working Committee, Central Council, etc. should be entertained and taken note of.

b) All sanctioned posts should be filled at both the offices and for new posts the Finance Standing Committee, I.M.A., should look into the matter.

c) The guide-lines as enunciated in the office order dated February 19, 1974 of the Hony. General Secretary were satisfactory and would meet the requirement of a smooth efficient and careful working of the Headquarters Office."

3. On a point being raised, the Hony. General Secretary informed that interviews for selection of an Assistant Executive Officer were in progress and a suitable candidate would soon be appointed. The Working Committee decided to leave it to the President to extend the services of the present Executive Officer as he felt necessary.

ANY OTHER MATTER

16. *Any other matter brought forward with the permission of the Chair.*

1. ***Policy of the IMA regarding issue and publication of the office circulars in the IMA NEWS.***

In a letter Dr. H. N. Shivapuri had complained that the system now adopted was not satisfactory which the Working Committee did not agree.

Decision: "The Working Committee does not approve changing the present practice being adopted to publish office circulars in the IMA NEWS and to send urgent circulars by post to branches, since in its view the system is working satisfactorily and no branch had complained about this procedure."

2. *World Conference on Asthma, Bronchitis and Allied Conditions—November 9-15, 1974.*

The Working Committee considered the correspondence from the President of the Asthma and Bronchitis Foundation of India in which he had requested IMA to be one of the supporting organisations for the above Conference.

Decision: "The Working Committee does not approve of IMA being a suporting organisation on financial considerations. It, however, authorises Dr. P. C. Bhatla in his individual capacity to be on the organising committee of the World Conference on Asthma, Bronchitis and Allied Conditions, New Delhi."

3. *M.A. Forms.*

Decision: "The Working Committee directs that the following lines be incorporated at the top of the M.A. Forms:

> This application must be thoroughly screened and all details checked at the Local Branch level and State/Territorial Branch level before forwarding to the Headquarters Office."
>
> "Membership proposed by Dr............ ....
> of.................Local Branch, IMA."

4. *Adulteration of Drugs.*

Dr. D. S. Mehra, the Honorary Joint Secretary informed the Working Committee of the various meetings of the Citizens Central Council, which he attended to represent the IMA at these meetings. The meetings were held under the Chairmanship of Mr. Gulzari Lal Nanda, where question of adulteration of drugs and foods was taken up. The Citizens Central Council expressed grave concern over the wide-spread practice of adulteration of drugs and food stuffs and also the production of sub-standard and spurious drugs. The Council expected that the medical profession will extend its cooperation in this compaign against adulteration.

Dr. Mehra further stated that with a view to being properly informed on the subject and playing a useful role in the deliberation of the Council he proposed to issue a circular to all the Branches of the IMA requesting them to give information as to the magnitude of the problem in their areas and suggestions as to how to combat the menace. He sought the cooperation of the Branches in this matter.

Many members expressed the concern that the menace was acquiring serious proportions and one reason besides others was that the punishment for the offence was not at all exemplary. The profession owes it to themselves to make purchases only from licenced manufacturers and chemists shops only and to be vigilant and promptly report about products coming to their notice as not genuine.

With a vote of thanks to the Chair the meeting came to a close.

Dr. Ved Prakash
President
Indian Medical Association

Dr. P. C. Bhatla
Hony. General Secretary
Indian Medical Association

ANNEXURE

List Showing Terms of Reference of Standing Committees and Their Membership as Reconstituted in April 1974

Note. The Hony. General Secretary shall be an *ex officio* member of all Committees vide Bye-law 38(H).

1 National Plans Standing Committee:

Members:

		Year of Retirement
1.	Dr. A. K. N. Sinha (Patna)—*Chairman*	1976
2	Dr. M. M. Siddhu (Lucknow)	1977
3.	Dr. Bhaskar Roy Choudhury (Calcutta)	1977
4.	Dr. P. R. Trivedi (Ahmedabad)	1976
5.	Dr. J. G. Jolly (Chandigarh)	1975
6.	Dr. Samar Rai Choudhury (Calcutta)	1975
7.	Dr. P. C. Bhatla (Delhi)—Hony. General Secretary, I.M.A.—*Member Convener*	

Terms of Reference:

1. To review the progress of national plans as related to matters affecting health of the people. In this connection, periodic reports shall be obtained from the State/Territorial Branches.

2. To prepare Memoranda based on above, advising the Development Councils, the Union Government and the Planning Commission on matters pertaining to planning on Health and making appropriate recommendations on a comprehensive basis.

2 Medical Education Standing Committee:

Members:

		Year of Retirement
1.	Dr. A. K N Sinha (Patna)—*Chairman*	1977
2.	Dr. P. C. Bhatla (Delhi)—*Hony. General Secretary, I M A.—Ex officio*	
3.	Dr. Y. G. Bodhe (Poona)	1976
4.	Dr. N. Banerjee (Calcutta)	1977
5.	Dr. Subir Chatterjee (Calcutta)	1976
6.	Dr. R. K. Menda (Bombay)	1975
7.	Prof. Rameshwar Sharma (Jaipur)	1975
8.	Dr. D. S. Mehra (Delhi)—Hony. Joint Secretary, I.M.A.—*Member Convener.*	

Terms of Reference:

1. To review the existing programme of teaching in medical, pre-medical and para-medical education and of research facilities in Medical Colleges in India and to recommend measures for rectifying the same.

2. To conduct a State-wise survey on the adequacy of training of general practitioners, to prepare schemes for periodic refresher courses and see to their implementation

3. Insurance Standing Committee:

Members:

		Year of Retirement
1.	Dr. M. G. Bhide (Poona)—*Chairman*	1977
2.	Dr. P. C. Bhatla (Delhi)—Hony. General Secretary, I.M.A.—*Ex officio*	
3.	Dr. M. A. Panwala (Bombay)	1975
4.	Dr. Sudhir De (Calcutta)	1977
5.	Dr. B. D. Kalgutkar (Bombay)	1976
6.	Dr. H. N. Shivapuri (Lucknow)	1975
7.	Dr. Mrinal Nandi (Calcutta)	1976
8.	Dr. A. P. Shukla (Ahmedabad)—*Member Convener*	1976

I.M.A. Representative on E.S.I.C., Dr. J. Majumdar (Calcutta) and I.M.A. Representative on Medical Benefit Council of E.S.I.C., Dr. D. S. Munagekar (Bombay) will attend the meeting as *ex officio* members.

Terms of Reference:.

1. To consider and advise the Working Committee as to the existing and growing defects in the working of the E.S.I. Medical Benefit Scheme and to make recommendations for remedying the same.
2. To establish liaison between the parties connected with running of the E.S.I. Scheme.
3. To provide the representatives of the Association in the various Committees of E.S.I.C. with relevant information and statistics as required by them.
4. To prepare in the light of schemes in operation in other countries, proposals for protecting the entire population by appropriate social security measures with the participation of the entire medical manpower in such schemes.
5. To deal with matters connected with Life Insurance Corporation of India and the difficulties met by members of medical profession.

4. "I.M.A. Buildings" Standing Committee:

Members:

		Year of Retirement
1.	Dr. Ved Prakash (Delhi)—*Chairman*	1976
2.	Dr. P. C. Bhatla (Delhi)—Hony. General Secretary, I.M.A.—*Ex officio*	
3.	Dr. Asit Ghose (Calcutta)	1976
4.	Dr. A. B Mukherjee (Calcutta)—Hony. Editor, JIMA	1975
5.	Dr. P. K. Choudhuri (Calcutta)—Hony. Secretary, JIMA	1975
6.	Dr. M. G. Bhide (Poona)	1977
7.	Dr. S. Samaddar (Patna)	1976
8.	Dr. A. K. Roy (Calcutta)	1977
9.	Dr. Pran Nath Anand (Delhi)—Hony. Asstt. Secretary, I.M.A.—*Member Convener*	

Terms of Reference:

1. To consider and report on the I.M.A. Building Fund and the progress of construction of the I.M.A. Buildings at Delhi and Calcutta housing the headquarters office and the Journal Office respectively.
2. To suggest to the Working Committee ways and means for enhancing funds for the same and work in that direction under instructions of the Working Committee.
3. To supervise planning, construction and maintenance of buildings at Delhi and Calcutta and to sanction day-to-day expenses of construction.
4. On completion of the Buildings to make proposals for the utilisation of the extra space that will become available, in the most profitable manner to the Association.

5. Family Welfare Planning Standing Committee:

Members:

		Year of Retirement
1.	Dr. R. K. Nanavaty (Ahmedabad) —*Chairman*	1977
2.	Dr. P C. Bhatla (Delhi)—Hony. General Secretary, I.M.A.—*Ex officio*	
3.	Dr. Nirupama Rath (Cuttack)	1976
4.	Dr. I. Chandrasekhar (Hyderabad)	1976
5.	Dr. Dilip Roy (Calcutta)	1977
6.	Dr. (Mrs.) Lalita Rao (Bombay)	1975
7.	Dr. M. A. Narasimhachar (Bangalore)	1975
8.	Dr. M. G. Garg (Delhi) Hony. Joint Secretary, I.M.A.—*Member Convener.*	

Terms of Reference:

1. To consider and advise the Working Committee on all matters related to Family Planning.
2. To assess if the money that is spent on Family Planning is really productive of expected results.
3. To formulate plans and take steps for the independent practitioners to participate effectively in the national endeavour.

6 Finance Standing Committee:

Members:

		Year of Retirement
1.	Dr. Bhola Nath (Varanasi)—*Chairman*	1976
2.	Dr. P. C. Bhatla (Delhi)—Hony. General Secretary, I.M.A.—*Ex officio*	
3.	Dr. Sukomal Sen (Calcutta)	1976
4.	Dr. P. K. Dutta (Dhanbad)	1975
5.	Dr. S. C Mitra (Calcutta)	1977
6.	Dr. Sushil Banerjee (Calcutta)	1977
7.	Dr J. V. R. Sarma (Hyderabad)	1975
8.	Dr. Mohindra Nath (Delhi)—Hony. Treasurer, I.M.A.—*Member Convener.*	

Terms of Reference:

1. To examine the finances of the Association and report on them.
2. To advise on the financial position and how to improve it.
3. To advise on methods of realising arrears of HFC etc., and to consider all disputes about HFC
4. To advise on ways and means of raising special funds as and when necessary.
5. To advise on investing the surplus money of the Association in the best way possible.
6. To consider the Budget of the Headquarters Office and of the Journals before they are presented to the Central Working Committee and the Central Council.

7. Standing Committee on Industrial Medicine:

Members:

		Year of Retirement
1.	Dr. Savailal Patel (Ahmedabad)—*Chairman*	1976
2.	Dr. P. C. Bhatla (Delhi)—Hony. General Secretary, I.M.A.—*Ex officio*	
3.	Dr. N. Mohandas (Calicut)	1976
4.	Dr. Biswajit Kumar Roy (Calcutta)	1977
5.	Dr. Anantha Narayan (Kerala)	1977
6.	Dr. K. C. Nambiar (Madras)	1975
7.	Dr. (Major) H. C. Mallik (Dhanbad)	1975
8.	Dr. M. G. Garg (Delhi)—Hony. Joint Secretary, I.M.A.—*Member Convener*	

Terms of Reference:

1. To consider and report on matter affecting the health of workers.

2. To study and report on the practice of medicine in various industries and allied occupations.

3. To consider the pay and prospects of doctors working in various industries, plantations, etc.

4. To study and report on legislative provisions in connection with industrial and occupational health.

8 Standing Committee on Rural Health:

Members:

	Year of Retirement
1 Dr. K. Hazari (Patna)—*Chairman*	1975
2 Dr. P. C. Bhatla (Delhi)—Hony. General Secretary, I.M.A.—*Ex officio*	
3. Dr. N. L. Sastry (Hyderabad)	1977
4. Dr. M. S. Rawat (Agartala)	1975
5. Dr. B. D. Kalgutkar (Bombay)	1977
6. Dr. K. V. Ghorpade (Karnataka)	1976
7. Dr. S. D. Sharma (Goa(	1976
8. Dr. D. S. Mehra (Delhi)—Hony. Joint Secretary, I.M.A.—*Member Convener.*	

Terms of Reference:

1. To consider, report and recommend on matters affecting the health in rural people, the practice of medicine in rural places and the available health services.

2. To give special consideration to rural water supply, sanitation and housing, and make recommendations.

3. To suggest a practical scheme for proper reorientation and utilisation of the "Development Blocks" as the basic unit of a comprehensive rural health structure.

9 Standing Committee on Medical Protection Insurance Scheme:

Members:

	Year of Retirement
*1. Dr. M. A. Panwala (Bombay)—*Chairman*	1975
2. Dr. P. C. Bhatla (Delhi)—Hony. General Secretary, I.M.A.—*Ex officio*	
3 Dr. Anjali Roy Chaudhury (Garden Reach)	1977
4. Dr. P. N. Hoshing (Ahmednagar)	1976
*5. Dr. Suresh C. Sheth (Bombay)	1977
*6. Dr. (Mrs.) Lalita Rao (Bombay)	1977
7. Dr. N. S. Sathyanarayana (Bangalore)	1975
*8. Dr. R. K. Menda (Bombay)—*Member Convener*	

*These four members from Bombay would form the Working Group of the Standing Committee to go into day-to-day-working of the scheme.

Terms of Reference:

To consider and report on all matters related to legal defence of members of the Association in cases of any claim or claims for breach of professional duties and on the working of the I.M.A. Medical Protection Insurance Scheme in collaborataion with the New India Assurance Company in accordance with the terms of agreement.

10. Public Relations and Medical Ethics Standing Committee:

Members:

	Year of Retirement
1. Dr. P. R. Trivedi (Ahmedabad) —*Chairman*	1977
2. Dr. P. C. Bhatla (Delhi)—Hony. General Secretary, I.M.A.—Ex officio	
3. Dr. C. L. Jagga (Muktsar)	1976
4. Dr. B. Rama Rau (Madras)	1977
5. Dr. R. Goswami (Dibrugarh)	1976
6. Dr. Gyan Prakash (Jaipur)	1975
7. Dr. B. S. Mehta (Varanasi)	1975
8. Dr. M. G. Garg (Delhi)—Hony. Joint Secretary, I.M.A.—*Member Convener.*	

Terms of Reference:

1. To supply medical news and information to the press and the public.

2. To answer questions of public health and medical interest posed by individuals or communities.

3. To issue pamphlets or other literature for the use of both doctors and patients, so as to improve doctor-patient relationship.

4. To evaluate legislative measures affecting the profession and to create favourable public opinion to remove undersirable measures.

5. To strengthen the organisation, viz. the Medical Association by preventing internal conflicts between groups and divergent interests.

6. To consider and recommend schemes of membership development and to organise membership drive.

7. To review from time to time the Code of Medical Ethics of the Association and to bring them up-to-date in the light of the changing situation as a result of the latest development of medical science.

8. To consider and suggest ways in which the Association and its members may assist other members in times of need.

11 Medical and Health Services Standing Committee:

Members:

A. *Office-Bearers at Headquarters:*

1. Dr. P. C. Bhatla (Delhi)—Hony General Secretary, I.M.A.—*Chairman.*
2. Dr. D. S. Mehra (Delhi)—Hony Joint Secretary, I.M.A.
3. Dr. M. G. Garg (Delhi)—Hony. Joint Secretary, I.M.A.
4. Dr. Mohindra Nath (Delhi)—Hony. Treasurer, I.M.A.

*B. *Members from States:*

	Year of Retirement
5. Dr. R. P. Khera (Delhi)	1975
6. Dr. V. S. Acchar (Bangalore)	1975
7. Dr. Navin Chandra (Kanpur)	1975
8. Dr. I. Chandra Sekar (Hyderabad)	1975
9. Dr. M. I. Jahan (Jorhat)	1975

*At its 105th meeting, the Working Committee decided that in the cases of members from States, there should be a rotation of States every year.

C. *Deans/Directors of the Three Medical Colleges, to be nominated by the President, Indian Medical Association*

D. *Representatives of Members of I.M.A. in:*

10. Armed Forces Medical Services
11. Railways
12. Central Health Service
13. Other Services represented by Dr. Saroj Chakravarty (Calcutta).

Terms of Reference:

1. To review and make recommendations from time to time on service conditions of doctors in various services.

2. To render advice and offer consultation to doctors in service on matters relating to their pay, status and other conditions of service.

12 Therapeutics and Appliances Standing Committee:

Members:

1. Dr. J. Majumdar (Calcutta)—*Chairman*
2. Dr. Samar Rai Choudhury (Calcutta)
3. Dr. G. V. Joglekar (Poona)
4. Dr. Gobind Achari (Patna)
5. Dr. R. K. Menda (Bombay)
6. Dr. M. A. Panwala (Bombay)
7. Dr. P. C. Bhatla (Delhi)—Hony. General Secretary, I.M.A.—*Convener.*

13. Representatives of Working Committee on the Governing Council of the I.M.A. College of General Practitioners.

1. Dr. T. M. Kumaraswami (Madras)
2. Dr. R. A. Bhagwat (Indore)
3. Dr. V. M. Bahulkar (Poona)
4. Dr. J. V. R. Sarma (Hyderabad)
5. Dr. K. P. Mehrotra (Kanpur).

State Medical Conference

XXVII Gujarat Medical Conference : Morvi : 1974.

The 27th Gujarat State Medical Conference was held on May 31—June 1-2, 1974, at Morvi under the auspices of the Morvi Branch of I.M.A. About 400 delegates and visitors from all over the Gujarat State attended the conference. The conference was presided over by Dr. B. H. Shah and inaugurated by Shri Mayurdhvajsinhji, former Maharaja of Morvi, who was present as the Chief Guest. Dr. P. R. Trivedi, a past President of I.M.A., inaugurated the scientific session of the conference, while Shri A. V. Modi, Managing Director, Unichem Laboratories, Bombay, inaugurated the scientific exhibition organised on this occasion.

The inaugural session commenced on 1-6-1974 with Dr. K. L. Mankad, Chairman of the Reception Committee, welcoming the guests and the delegates to Morvi, a town known for its pottery works, transistor clocks industry, etc., Dr. H. J. Parekh, President of Morvi Branch of I.M.A., read out the messages received from several dignitaries wishing the conference a success. Shri Mahanand Jeswani, President, Morvi Municipality, thanked the Morvi Branch of I.M.A. for providing an opportunity to the town to host the Gujarat State Medical Conference.

Addressing the conference the Chief Guest, Sri Mayurdhvajsinhji recalled the medical services rendered to the people of the erstwhile Morvi State during the regime of his forefathers, when every village in the State was connected to the headquarters by telephone as a result of which a quick ambulance cum mobile dispensary service could be made available to every village in times of emergency. He urged the delegates to attach special importance to the problems of rural health service and family welfare programme among the topics to come up for discussion in the session.

Dr. S. M. Rao, outgoing President, introduced Dr. B. H. Shah to the audience and formally installed him in the chair. Following this Dr. Shah rose to deliver his address.

At the outset he thanked the members of the State Branch for giving him the honour of serving the members of the medical profession in the State as President of the State Branch. In course of his presidental address he dwelt on some of the burning problems of the medical profession, such as, rural health care, continuing education for general practitioners, school health, health education, quackery, and control of communicable diseases. He also stressed the need for an intensive drive for enrolment of members to make the Association strong and effective.

Dr. P. R. Trivedi, while declaring open the scientific session of the conference, appealed to the medical men to stand unitedly in the interest of the progress of scientific medicine in the country. Shri A. V. Mody, speaking at the inauguration of the scientific exhibition, thanked the organisers for giving him an opportunity to meet and exchange views with a large number of doctors from all corners of the State. Dr. J. G. Bhatt, Hony. State Secretary, I.M.A., Gujarat State Branch, next, declared the names of the recipients of different awards made by the State Branch He informed the gathering amidst cheers that the Mahuva Branch had been selected for the award of Dr. P. R. Trivedi Rotating Trophy for best performance during the year. 1972-73. Dr. U. M. Siddi and Dr. N. R. Trivedi, President and Hony. Secretary respectively of Mahuva Branch, received the trophy. Dr. Bhatt also announced the names of final year M.B.B.S. students who were awarded silver medals for securing highest marks in their respective University examinations in 1973. The students were: 1. Dr. Pankaj J. Patvari (Gujarat University); 2. Dr Jayendra J. Shah (M. S. University); 3. Dr. Mohmediqubal A. Lohia (Saurashtra University); 4. Dr. (Miss.) Shakuntla B. Patel (South Gujarat University).

Dr. N. V. Patel (Ahmedabad) received the first prize of Rs. 200/- awarded by the State Branch for his paper on Diet in Health and Diseases. The second prize of Rs. 100/- given by the State Branch for each of the best papers read at the Bilimore Conference went to Dr. Nathubhai H. Patel (Ahmedabad) for medicine, Dr. Mahendrakumar P. Patel (Ahmedabad) for surgery and to Dr. (Mrs.) Usha T. Patel, Dr. Khasgiwala, Dr. Lina C. Dutt and Dr. R. G. Patel—all from Ahmedabad—for obstetrics and gynaecology. The third prize of Rs. 100/- given by the State Branch went to Dr. S. H. Mehta and Dr. U. S. Medh from Ahmedabad for the best article contributed to *Gujarat Medical Journal* during the year 1973 on Management of Acute Myocardial Infarction. Dr. R. G. Patel (Ahmedabad), who delivered his oration on Newer Advances in Obstetrics, received the Dr. P. R. Trivedi Oration Award. The conference also congratulated Sri Vilas V. Sathaye, a medical student of M. P. Shah Medical College, Jamnagar, who secured the first place in the Medical Students' Essay Contest of I.M.A. for 1973.

The session concluded with the vote of thanks proposed by Dr. S. N. Munshi, Organising Secretary, to the distinguished guests and various institutions and persons, who had contributed to the success of the conference.

Your Health

You would certainly be very glad to learn that the monthly health journal YOUR HEALTH, published by your Association has been well appreciated throughout the world. Its twentythird year of publication commenced from January 1974.

In the name of your Association and to promote health education in the country, may I request you to enlist your own branch as a subscriber and to try to enlist a few subscribers from amongst your friends ? Moreover, I would appeal to you to *please see that your local public, college and high school libraries subscribe to this journal for the benefit of the readers.* To fulfil the aims and objects of your Association in publishing this health magazine, your active cooperation and assistance would be of immense value.

The Hony. Editor, YOUR HEALTH will be pleased to send you or your friends who are likely to be subscribers specimen copies of YOUR HEALTH.

Dr. Jyotirmoy Chatterjee
Hony. Editor

53, Creek Row,
Calcutta-700014
November 1, 1974

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ALL-INDIA MEDICAL CONFERENCE : CALCUTTA : DECEMBER 25—27, 1974

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NOVEMBER 16, 1974

ORIGINALS AND PAPERS

1

Serum Magnesium in Renal Diseases

M. N. CHATTERJEA*, A. SARAN**

[Received for publication January 24, 1974]

In recent years an increasing number of patients with overt abnormalities of extracellular magnesium concentration have been recognised (Flink *et al.*, 1957; Hanna *et al.*, 1960). Low serum magnesium levels have been found in patients who showed clinical signs of hallucinations, delirium and characteristic athetoid and flapping tremors (Flink, 1956; Hammersten and Smith, 1957). Hypermagnesaemia have been reported to occur in advanced renal diseases and increased magnesium level in serum has been claimed to be responsible for weakness, somnolence and other C.N.S. depression in advanced cases of renal failure.

To our knowledge, only 2 reports are available from India on serum magnesium level in renal diseases in Indian subjects (Pradhan *et al.*, 1964; Jain and Singh, 1969).

In the present study an attempt has been made to find out the serum magnesium level in different renal diseases in Indian subjects and to correlate the serum magnesium level with blood urea level and discuss its clinical and pathological significance.

MATERIAL AND METHOD

(a) The control group consisted of 42 normal healthy aduts, 34 males and 8 females, their ages ranging from 18 to 60 years.

(b) Patients suffering from renal diseases due to various causes were studied. Estimation of blood urea was carried out in each case in addition to serum magnesium estimation. Most of the cases were those admitted to the wards of Patna Medical College Hospital, while some of them were selected from out-patients' department. Clinical diagnosis was made by the physician-in-charge of the cases and was based on detailed history of patients, physical examination, laboratory investigations, and effect of therapy. Laboratory investigations included urine and blood examinations. Urine examination included physical, chemical, microscopical and bacteriological examination, and blood examination included estimation of urea, creatinine, proteins and cholesterol. Histopathological examination to confirm the clinical diagnosis were not carried out in most of the cases. The clinical diagnosis of 21 cases of renal diseases comprised acute glomerulonephritis (3 cases), chronic nephritis (3 cases), chronic pyelonephritis (3 cases), nephrotic syndrome (5 cases) and uraemia (7 cases).

The term 'uraemia' has been used to signify cases of renal failure who had high blood urea and clinical manifestations of uraemia. No case of uraemia due to pre-renal or post-renal causes were included in the present study.

For estimation of serum magnesium the colorimetric method using titan yellow, as modified by Neill and Neelly (1956) was used.

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Blood urea was estimated by modified nesslerisation method.

RESULTS

(a) In the control group, the serum magnesium level in 42 normal healthy subjects ranged from 1.36 to 2.50 m.Eq /l, with a mean of 1.83±0.28 m.Eq /l.

(b) In renal diseases, the serum magnesium level was determined in 21 cases of renal diseases of varied aetiology. The serum magnesium level and blood urea level obtained in each case are given in Table 1.

TABLE 1—SHOWING SERUM MAGNESIUM AND BLOOD UREA LEVELS IN CASES OF RENAL DISEASES

Serial No.	Age and sex	Clinical diagnosis	Blood urea (mg.%)	Serum magnesium (m.Eq /l)
1	26 M	Acute glomerulonephritis	36.0	1.58
2	42 M	Uraemia (hypertensive nephropathy)	140.0	2.91
3	52 M	Uraemia	190.0	3.80
4	30 M	Acute glomerulonephritis	29.5	1.41
5	35 M	Nephrotic syndrome (on diuretic therapy)	93.0	1.36
6	39 M	Chronic glomerulonephritis	52.0	2.33
7	22 M	Nephrotic syndrome	36.0	1.64
8	42 M	Uraemia	98.5	3.16
9	42 M	Chronic glomerulonephritis	49.0	2.40
10	56 M	Uraemia	206.0	4.25
11	37 F	Chronic pyelonephritis	96.5	3.11
12	22 M	Nephrotic syndrome	58.0	2.75
13	40 M	Chronic glomerulonephritis	89.5	3.55
14	50 M	Uraemia	116.0	3.34
15	36 M	Nephrotic syndrome (on diuretic therapy)	160.0	1.48
16	48 M	Uraemic coma	200.0	3.21
17	52 M	Chronic pyelonephritis	158.0	3.11
18	33 F	Chronic pyelonephritis	60.0	2.84
19	45 M	Nephrotic syndrome (on diuretic therapy)	22.0	1.84
20	48 M	Uraemia	160.0	4.04
21	35 M	Acute glomerulonephritis	80.0	1.47
		Mean and S.D.	101.0±57.0	2.64±0.90

It is apparent from Table 1 that there is a significant correlation between the serum magnesium concentration and blood urea level. The serum magnesium was high in most of the cases where blood urea was raised. Co-efficient of correlation 'r' between serum magnesium and blood urea level in acute nephritis and nephrotic syndrome was −0.049 and −0.38 respectively which is not significant, whereas in uraemic cases 'r'=+0.55, is statistically highly significant.

Table 2 gives the range of serum magnesium level and average mean with S.D. in different types of renal diseases.

TABLE 2—SHOWING SERUM MAGNESIUM LEVELS IN VARIOUS TYPES OF RENAL DISEASES

Diagnosis	No. of cases	Serum magnesium Range (m.Eq /l)	Serum magnesium Mean and SD (m.Eq /l)
Acute glomerulonephritis	3	1.41−1.58	1.48±0.02
Chronic glomerulonephritis	3	2.33−3.55	2.76±0.55
Chronic pyelonephritis	3	2.84−3.11	3.02±0.12
Nephrotic syndrome	5	1.36−2.75	1.81±0.49
Uraemia	7	2.91−4.25	3.53±0.46

Patients with renal diseases were divided into the following 3 groups in respect of blood urea level and C.N.S. changes : (a) patients with renal disease but without azotaemia (Group I), (b) patients with renal disease and azotaemia but without clinical signs of C.N.S. depression (Group II) and (c) uraemic patients presenting clinically with symptoms of C.N.S. depression (Group III).

Patients were labelled azotaemic when the blood urea level was consistently greater than 45 mg. per cent.

Group I—In patients without azotaemia only 4 out of the 21 cases had blood urea less than 45 mg. per cent. The mean serum magnesium in this group was 1.61±0.15 m.Eq /l (Table 3) which was definitely lower than the mean normal. None of these patients showed any symptom of magnesium deficiency, viz., athetoid tremors and confusion.

Group II—This comprised patients with azotaemia but without associated C.N.S. depression. There were 11 patients in this group with blood urea level above 45 mg. per cent, but clinically they did not present with uraemic features. None of them showed any evidence of C.N.S. depression. The mean serum magnesium level obtained in these 11 patients was 2.48±0.71 m.Eq /l (Table 3). This group showed a marked rise in serum magnesium, and statistically this elevation is quite significant as compared to normal ($p<0.01$; 't'=5.18).

Group III—This group comprised patients with uraemia and C.N.S. depression.

The remaining 6 out of 21 cases had uraemic features clinically with drowsiness and somnolence.

Table 3—Showing Statistical Comparison of Serum Magnesium Levels in Normal Cases with Those in Renal Diseases

Group	No. of cases	Serum magnesium (m.Eq /l)		't'	p	Remarks
		Range	Mean and SD			
1. Normal	42	1.36–2.50	1.83 ± 0.28			
2. Renal diseases						
(a) without azotaemia	4	1.41–1.84	1.61 ± 0.15	1.5	—	Not significant
(b) with azotaemia but no C.N.S. depression	11	1.36–3.55	2.48 ± 0.71	5.18	0.01	Significant
(c) uraemia with C.N.S. depression	6	3.16–4.25	3.63 ± 0.42	13.8	0.01	Highly significant

Case 16 was admitted in a comatose state. The mean serum magnesium concentration obtained in these patients, was 3.63 ± 0.42 m.Eq /l (Table 3), which is almost twice the value of the normal control group (normal level, 1.83 ± 0.28 m.Eq /l). The patients in this group had abnormally high levels of serum magnesium. The rise of serum magnesium in this group is statistically highly significant as compared to normal ($p<0.01$; $'t'=13.2$).

Discussion

The serum magnesium level was determined in 21 cases of renal diseases of varied aetiology. The mean serum magnesium level was found to be elevated in all the groups of renal diseases except in cases of acute glomerulonephritis and nephrotic syndrome with the exception of Case 12 (Table 1). The mean value of serum magnesium was 3.53 ± 0.46 m.Eq /l (Table 2) in uraemic cases, which was higher than in any other group of renal diseases as a whole.

The available literature regarding serum magnesium in renal diseases are conflicting except that of Smith and Hammersten (1958). Both high and low values have been reported by various workers. That hypermagnesaemia is brought about in chronic renal diseases has been commented by many workers. Hypermagnesaemia with severe chronic renal failure was first reported by Salveson and Linder (1923). As early as 1932, Watchorn and McCance reported serum magnesium values ranging from 1.57 to 10.34 mg. per cent in 8 cases comprising uraemia and nephritis, and they also pointed out that most of these cases had high degree of nitrogen retention. Walker and Walker (1936) also reported similar findings. In the present study, high serum magnesium levels were found to be invariably associated with high blood urea level in almost all the cases. There were only 3 exceptions, viz., a case of acute glomerulonephritis (Case 21, Table 1), who showed serum magnesium level of 1.47 m.Eq /l, in spite of a blood urea level of 80 mg. per cent, and 2 cases of nephrotic syndrome (Cases 5 and 15, Table 1), whose magnesium levels were 1.36 and 1.48 m.Eq /l respectively. From Table 1, it is apparent that there is a significant relationship between blood urea and serum magnesium, and that a rise of blood urea is associated with corresponding rise in serum magnesium. These observations corroborate the observations of Smith and Hammersten (*loc. cit.*), who also reported a positive correlation between rise of serum magnesium and increase in N.P.N.

In the present investigation, serum magnesium level was determined only in 5 cases of clinically diagnosed nephrotic syndrome. The mean value of serum magnesium obtained was 1.83 ± 0.28 m.Eq/l which is similar to normal average mean obtained in the present study. Three cases showed values less than the average normal mean and were rather to the lower side of normal range. This is in agreement with the findings of Prasad *et al.* (1961), who also reported lower values than normal in nephrotic syndrome. Others have reported variable results. The present values in nephrotic syndrome are not in complete agreement with the values reported by Pradhan *et al.* (*loc. cit.*) in nephrotic syndrome cases in Indian subjects; they studied 7 cases of nephrotic syndrome and reported an average mean value of 4.77 mg. per cent (3.97 m.Eq /l). They observed rise of serum magnesium levels in all the cases of nephrotic syndrome except in one. A plausible explanation for the difference in the results obtained by Pradhan *et al.* (*loc. cit.*) and that of the present study may be found in the fact that cases of nephrotic syndrome studied by the former were probably advanced cases and were associated with renal failure and nitrogen retention. Whether those cases were actually associated with raised blood urea level or not has not been explicitly mentioned in the paper by the authors.

In healthy subjects with normal stores of magnesium, if magnesium is administered parenterally, it is excreted in the urine almost quantitatively. Ionised magnesium is available freely for glomerular filtration as long as the glomeruli are not damaged. The tubules reabsorb the major portion of filtered magnesium "by processes operating normally at or near saturation" (Barker *et al.*, 1959). Whether tubular secretion plays any part in regulating magnesium homeostasis in normal man is still in question and has not been proved. Histologically, in nephrotic syndrome though the primary lesion is in the glomeruli which is characterised by variable splitting, thickening and reduplication of basement membrane of glomeruli and loss of the foot processes of the podocytic epithelial cells of glomerular tufts, it is peculiarly associated with increased permeability of the glomeruli. The epithelial cells in the proximal convoluted tubules are usually heavily laden with lipids. These tubular changes may interfere with the reabsorption of magnesium from the tubules. Thus, in the early phase of nephrotic syndrome, due to increased permeability of glomeruli, there is heavy albuminuria and associated loss of serum magnesium. Under conditions of physiological pH, approximately 1/3 of serum magnesium is bound to protein and the remainder is ionic (Prasad *et al., loc. cit.*). Hence, low serum magnesium value is not only due to loss of ionic magnesium and diminished absorption but may also be due to loss of protein-bound magnesium with associated heavy albuminuria. It is in the advanced stages of nephrotic syndrome when the damage to glomeruli has progressed so much that it reduces the glomerular filtration rate, magnesium will accumulate along with blood urea and N.P.N. In the present study, Case 12 (Table 1) showed a serum magnesium level of 2.75 m.Eq /l with a blood urea level of 58 mg. per cent. On the other hand, 2 cases of nephrotic syndrome, Cases 5 and 15 (Table 1), showed low serum magnesium levels in spite of high blood urea levels. These 2 cases at the time of investigation were on diuretic therapy for prolonged periods and this may be a causative factor for such low values in these 2 cases. Depletion of magnesium with diuretic therapy has been reported by various workers. A fall in serum concentration of magnesium has been observed to be associated with increased urinary excretion with diuretic therapy by Martin *et al.* (1952). During the course of mercurial therapy, symptomatic hypomagnesaemia has been observed and controlled subsequently by parenteral magnesium administration by Smith *et al.* (1962). The other factor which may contribute to low serum magnesium level in nephrotic syndrome is hyperaldosteronism which is associated with ascites of nephrotic syndrome.

The present study shows that as azotaemia ensues the serum magnesium generally becomes elevated. This corroborates the findings of Smith and Hammersten (*loc. cit.*). Hypermagnesaemia, in these cases, may be accounted for probably by the reduced glomerular filtration.

Despite a vast body of investigative data, the causes of many of the symptoms of uraemia are still unsolved. The C.N.S. depression observed in uraemic patients correlates well with high blood urea and hypermagnesaemia. In the present study, 6 out of 7 patients of uraemia showing high blood urea and high serum magnesium levels (ranging from 3.16 to 4.25 m.Eq /l with an average mean of 3.63 ± 0.42 m.Eq /l) did show clinically C.N.S. depression. One patient (Case 16, Table 1) was admitted in a comatose state. Case 2 (Table 1), whose serum magnesium level was 2.91 m.Eq /l and blood urea was 140 mg. per cent, did not show any C.N.S. depressive features.

Randall *et al.* (1964) first studied the toxic manifestations produced in human subjects by hypermagnesaemia which they induced in patients suffering from renal failure by administration of magnesium. They observed that C.N.S. depression occurred in all individuals with serum magnesium concentration above approximately 4.0 m.Eq /l and it was characterised by drowsiness, lethargy, slight slurring of speech, an ataxic gait and a tendency to fall sidewards while standing erect. Hirschfelder and Serles (1934) postulated many years ago that excess of magnesium could lead to coma in patients with renal diseases, who were given therapeutic magnesium unwisely. The present study is in agreement with that of Smith and Hammersten (*loc. cit.*) and supports the concept proposed by them that excess magnesium may play a role in the pathogenesis of C.N.S. depression and coma of the uraemic subjects even without added magnesium administration. Surely, hypermagnesaemia is not the sole factor. Other factors and presence of uraemic toxins are also responsible for bringing biochemical changes which lead to C.N.S. depression and coma in uraemic patients.

SUMMARY

The serum magnesium levels in 21 patients of renal diseases, ranged from 1.36 to 4.25 m.Eq /l with a mean of 2.64 ± 0.90 m.Eq /l. The blood urea level in renal diseases ranged from 22.0 to 206.0 mg. per cent with a mean of 101 ± 57.0 mg. per cent.

The cases of renal diseases were divided into 3 groups according to the blood urea level and C.N.S. changes.

In uraemic cases the serum magnesium level ranged from 3.16 to 4.25 m.Eq /l with a mean value of 3.63±0.42 m.Eq /l almost twice the value of normal group. The serum magnesium level showed a rise with increase in blood urea. A positive correlation was observed between serum magnesium level and blood urea level which is statistically highly significant ($p<0.01$; 't'=13.2; 'r'=+0.55).

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2

Experimental Studies on the Effect of Stress on Adrenal Glands

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The concept of stress was described by Hans Selye (1950a) in his "General Adaptation Syndrome". He demonstrated that in response to trauma, infection, burns, exposure to heat or cold, etc., an individual responded as a part of his adaptative mechanism with a definite hormone pattern. Based on the above facts, histological and histochemical changes in adrenals as well as in other organs following various forms of stress have been studied with a view to correlate them with the hormone pattern in different phases of stress (Leven, 1945; Sayers *et al.*, 1945; Patt *et al.*, 1947; Liebow *et al.*, 1949; Rabinovicci, 1951; Mitra *et al.*, 1962, Zarrow *et al.*, 1966, Danellis, 1966; Freeman, 1967). In most of the instances, however, complete histological and histochemical studies of the adrenal glands have hardly been undertaken, though they are considered to play the most important role in this condition. It was, therefore, thought worthwhile to make thorough investigations on the effect of stress on adrenal glands.

The adrenal cortex consists of 3 zones—zona glomerulosa, zona fasciculata and zona reticularis. The zona glomerulosa is responsible for the production of mineralocorticoids, zona fasciculata for glucocorticoids and zona reticularis for sex hormones and to some extent glucocorticoids. Out of the 3 steroid hormones, mineralocorticoids and the glucocorticoids contain ketols, hence give positive ketosteroid staining, whereas the sex hormones being devoid of the α ketols will not give any staining reaction. So, by ketosteroid staining (Khanolkar *et al.*, 1958) the concentration of mineralocorticoids in the zona glomerulosa and the glucocorticoids in the zona fasciculata and reticularis can be demonstrated. When there is depletion of these hormones these areas will give negative ketosteroid staining, whereas when they are present positive reaction will be found.

Cholesterol is a raw material for the synthesis

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of steroid hormones and ascorbic acid helps the process of synthesis. So, diminished concentration of these substances gives an evidence of their increased utilisation for steroid hormone synthesis at times of increased demand as well as their non-availability for further manufacture of those hormones.

Diminished concentration of fat is suggestive of increased cellular activity. So the fat content of the cortical cells can be studied to find out the status of activity of the cells.

Adrenal medulla synthesises adrenaline and noradrenaline. Out of these 2 substances the concentration of noradrenaline only can be demonstrated by histochemical methods to have some idea about the activity of adrenal medulla.

MATERIAL AND METHOD

The animals selected for the present study were male albino rats of ages varying from 40 to 60 days and the body weight varying from 40 to 60 G. The animals before being subjected to experiment were maintained for about a week in the laboratory under similar environmental conditions and dietetic status.

During each experiment a batch of 9 to 10 animals were subjected to heat stress by keeping them in a thermoregulated chamber at 62±8°C for ½ hour. The animals were then sacrificed by a single blow on the head after 2 hours, 4 hours and 16 hours of stress in variable numbers and they constituted experimental groups A, B and C respectively. A batch of 3 animals maintained under identical conditions of diet and environment were also sacrificed during each experiment and they served as control. One of the control animals was sacrificed along with the experimental Group A, one with Group B and the remaining one with Group C.

Experimentwise distribution of the experimental and control groups of animals is shown in Table 1.

TABLE 1—SHOWING EXPERIMENTWISE DISTRIBUTION OF THE EXPERIMENTAL AND CONTROL GROUPS OF ANIMALS

Experiment No.	Experimental Group				Control Group			
	Total animals	Group A	Group B	Group C	Total animals	Sac. with Group A	Sac. with Group B	Sac. with Group C
I	9	3	3	3	3	1	1	1
II	10	4	3	3	3	1	1	1
III	9	3	3	3	3	1	1	1
IV	9	3	3	3	3	1	1	1
V	10	3	3	4	3	1	1	1
	47	16	15	16	15	5	5	5

Sac. = sacrificed

Experimental Group : Immediately after death or sacrifice 2 adrenal glands (separated from fat and fascia) were dissected out and studied as follows:

In each animal the weight of the 2 glands together was recorded. Each of the adrenal glands was divided into 2 pieces. All the 4 pieces were then fixed in fixatives as follows :—

(a) Two pieces in neutral 10 per cent formol saline.

(b) One piece in 5 per cent acidic silver nitrate solution in a dark vial.

(c) One piece in freshly prepared 10 per cent potassium iodate solution.

From one piece of tissue in (a) a paraffin section was prepared and stained by routine haematoxylin and eosin method to study the histological changes in the adrenal gland. From another piece of tissue in (a) frozen sections were prepared to study the following :—

Ketosteroids (after Khanolkar *et al., loc. cit.*), cholesterol (Schultz method, cited by Pearse, 1960), fat (Sudan III and IV staining; Kay and Whitehead, 1941).

From the piece of tissue in (b), ascorbic acid was estimated by the method of Bacchus (1950).

From the piece of tissue in (c), noradrenaline was estimated according to Iodate method of Hillarp and Hokfelt (1955).

Control Group : In all the animals of this group the methods of collection of different organs and their subsequent studies were similar to those followed in case of experimental animals.

OBSERVATIONS

I. *Adrenal glands from control animals*: The findings in these animals were not at all influenced by the time of scrifice, so all of them were considered together without making any further subdivision.

Weight—The average weight of the 2 adrenals together was 5.4 mg. and the range was 5 to 6 mg.

Histological findings—The classical histological picture of the adrenal cortex was evident. The cortex was found to surround the central portion, the medulla, which was composed of irregularly arranged cells, some polyhedral and others with indefinite shape. A capsule was present encircling the whole tissue.

Histochemical findings—Ketosteroid—Zona glomerulosa showed small ketosteroid content and it was distributed as fine magenta coloured granules in the cytoplasm. Zona fasciculata was rich in this substance and it was distributed as fine droplets in the cytoplasm. Zona reticularis showed small ketosteroid content located in the periphery of the cells (Fig. 1).

Cholesterol—Zona glomerulosa showed patchy cholesterol distribution as evidenced by bluish green colour. Zona fasciculata was most rich in this substance. Zona reticularis showed scanty distribution of cholesterol (Fig. 2).

Ascorbic acid—It was widely distributed as black granules throughout the layers of the cortex. In the medulla, it was represented by patchy coarse granules.

Neutral fat—Zona glomerulosa showed diffuse distribution of neutral fat as fine orange coloured cytoplasmic droplets to a moderate extent. Zona fasciculata in its outer third showed scanty distribution, whereas in its inner two-thirds it was present in moderate quantity. Zona reticularis showed moderate amount of the substance.

Noradrenaline—Cells containing this substance were stained brown and were present in the medulla only.

II. *Adrenal glands in experimental animals*: Out of the 47 animals of this group there were 16 animals in Group A, 15 in Group B and 16 in Group C.

Weight—The average weight of the 2 adrenals together was 6.3 mg. in Group A, 6.4 mg. in Group B and 6.3 mg. in Group C as compared to 5.4 mg. in the control animals. The weight of the adrenal glands in Group A, B and C animals as compared to that of Control Group has been statistically analysed.

It was found that the observed 't' for Group A, B and C at 50 per cent level of significance were equal to 4.23, 2.8 and 2.32 respectively and table value of 't' at the same level of significance for 14 d.f. was equal to 2.14 in all cases. Therefore, the observed 't' values in all the experimental groups were highly significant. Hence the hypothesis of equality of average values was rejected.

Histological findings—Group A—Most of the animals (11) of this group showed slightly less vacuolation of the cytoplasm of cells in the zona fasciculata. Two animals, in addition to this, had replacement of clear cells by compact cells in the zona fasciculata and congestion and haemorrhage in the medulla. In 1 animal only there was marked congestion and haemorrhage in both cortex and medulla.

Group B—In this group all the animals had slightly less vacuolation of the cytoplasm of cells in the zona fasciculata, and 6 of them had replacement of clear cells by compact cells in the same zone in addition.

Group C—In this group 9 of the 16 animals showed histologically normal adrenal gland while the remaining 7 showed slightly less vacuolation of the cytoplasm of the cells in the zona fasciculata.

Histochemical findings—The histochemical findings of the adrenal gland in different groups of experimental animals are shown in Table 2.

From Tables 2-6, it is apparent that in Group A, 2 hours after stress there was depletion of ketosteroid (Fig. 3), cholesterol (Fig. 4), ascorbic acid and neutral fat from zona fasciculata and zona reticularis of the adrenal cortex, whereas the zona glomerulosa showed no deviation from normal in most of the animals. Evidence of increased secretion of noradrenaline from the adrenal medulla was also seen. In Group B, 4 hours after stress there was recovery of ketosteroid (Fig. 5), cholesterol (Fig. 6) and neutral fat contents of zona fasciculata and zona reticularis, but zona glomerulosa showed depletion of these substances in the majority of the animals, though they were found

Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 5

Fig. 6

Fig. 7

Fig 8

TABLE 2—SHOWING KETOSTEROID STATUS OF THE ADRENAL CORTEX IN EXPERIMENTAL ANIMALS

Groups	Zona glomerulosa	Zona fasciculata	Zona reticularis	No. of animals
A	Absent	Absent	Absent	2
	Normal	Absent	Absent	11
	Normal	Markedly diminished	Markedly diminished	3
B	Moderately diminished	Absent	Absent	3
	Slightly diminished	Markedly diminished	Markedly diminished	8
	Normal	Markedly diminished	Moderately diminished	4
C	Normal	Normal	Normal	11
	Normal	Slightly diminished	Normal	5

TABLE 3—SHOWING CHOLESTEROL STATUS OF THE ADRENAL CORTEX IN EXPERIMENTAL ANIMALS

Groups	Zona glomerulosa	Zona fasciculata	Zona reticularis	No. of animals
A	Absent	Absent	Absent	2
	Normal	Absent	Markedly diminished	12
	Normal	Markedly diminished	Moderately diminished	2
B	Moderately diminished	Absent	Absent	2
	Slightly diminished	Markedly diminished	Markedly diminished	8
	Slightly diminished	Moderately diminished	Moderately diminished	5
C	Normal	Normal	Normal	11
	Normal	Slightly diminished	Normal	5

to be normal 2 hours after stress. The ascorbic acid content of the adrenal cortex at this time, however, showed further diminution though noradrenaline content of the adrenal medulla was more or less similar to that of Group A animals. In Group C, 16 hours after stress all the zones of the adrenal cortex returned to normal in respect to ketosteroid (Fig. 7), cholesterol (Fig. 8) and neutral fat contents, but complete repletion of ascorbic acid did not occur at this stage. Medulla also showed diminished noradrenaline storage at this time.

DISCUSSION

Changes in the adrenal glands of rats at variable intervals following heat stress have been

TABLE 4—SHOWING ASCORBIC ACID STATUS OF THE ADRENAL CORTEX AND MEDULLA IN EXPERIMENTAL ANIMALS

Groups	Cortex	Medulla	No. of animals
A	Markedly diminished	Markedly diminished	1
	Moderately diminished	Moderately diminished	4
	Slightly diminished	Slightly diminished	11
B	Markedly diminished	Markedly diminished	2
	Moderately diminished	Slightly diminished	8
	Slightly diminished	Slightly diminished	5
C	Normal	Normal	1
	Slightly diminished	Normal	12
	Moderately diminished	Moderately diminished	1

TABLE 5—SHOWING NEUTRAL FAT STATUS OF THE ADRENAL CORTEX IN EXPERIMENTAL ANIMALS

Groups	Zona glomerulosa	Zona fasciculata	Zona reticularis	No. of animals
A	Normal	Markedly diminished	Markedly diminished	11
	Normal	Markedly diminished	Moderately diminished	3
	Normal	Moderately diminished	Moderately diminished	2
B	Normal	Markedly diminished	Moderately diminished	7
	Normal	Markedly diminished	Markedly diminished	7
	Normal	Moderately diminished	Slightly diminished	1
C	Normal	Normal	Normal	14
	Normal	Slightly diminished	Normal	2

TABLE 6—SHOWING NORADRENALINE STATUS OF THE ADRENAL MEDULLA IN EXPERIMENTAL ANIMALS

Groups	Medulla	No. of animals
A	Moderately diminished	4
	Slightly diminished	12
B	Moderately diminished	1
	Slightly diminished	14
C	Moderately diminished	1
	Slightly diminished	14
	Normal	1

Total Vagotomy and Gastrojejunostomy for Chronic Duodenal Ulcer

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During the period 1900 to 1925, surgeons tried to cure duodenal ulcer by neutralising the acid gastric juice by gastrojejunostomy. Unfortunately, ulcers developed in the jejunum and the incidence of jejunal ulcer after gastrojejunostomy for duodenal ulcer was more than 50 per cent.

In 1940, vagotomy as a treatment of duodenal ulcer came into clinical practice. It was at first carried out by supra-diaphragmatic approach without any drainage operation on the stomach. It was observed that vagotomy diminishes gastric acidity and impairs gastric motility, but leads to antral stasis and more gastrin liberation by pyloric antrum which in its turn develops recurrent ulcer, particularly at the lesser curvature of the stomach. Dragstedt (1942) revealed the role of vagus nerves in the treatment of duodenal ulcer and established the role of correct vagotomy to cure it.

In an attempt to determine preoperatively the effect of vagotomy on gastric secretion, Gillespie and Kay (1961) evaluated the relative importance of vagal drive in duodenal ulcer patients by measuring the reduction of acid secretion following pharmacological blockade of vagi, i.e., 'medical vagotomy'. Johnston *et al.* (1966) found the test significant when a large number of patients were assessed but it was not sufficiently accurate in the preoperative assessment of individual patients. According to Jordan (1968), "The reduction in gastric secretion achieved by vagotomy was frequently underestimated on the basis of 'medical vagotomy' and predictions in individual cases were sufficiently inaccurate to diminish the usefulness of the test as a means of selecting those patients who would most benefit by vagotomy".

In 1950, sub-diaphragmatic vagotomy with gastrojejunostomy was started as the treatment of duodenal ulcer with satisfactory results.

Vagotomy with gastrojejunostomy or pyloroplasty has emerged as the preferred operation for duodenal ulcer as it carries a very low mortality and morbidity rate (Woodward, 1959).

MATERIAL

In the surgical units at the District Hospitals, Midnapore, and B. S. Medical College and Hospitals, Bankura, 70 patients with duodenal ulcer were treated with vagotomy and posterior gastrojejunostomy. The average duration of illness of these patients varied between 10 and 16 years. Posterior gastrojejunostomy was preferred for gastric drainage because the duodenum was so adherent and scarred that safe pyloroplasty could not be envisaged. These cases were followed up for varying periods—18 months to 6 years.

INVESTIGATIONS

In all patients preoperative alcoholic fractional test meal studies and barium meal investigation of stomach and duodenum were carried out. In gastric analysis for acid level study of these patients, attempts were made not only to make the diagnosis of duodenal ulcer but also to exclude Zollinger-Ellison syndrome. For the latter, conventional atropine suppression test and maximum histamine stimulation test were carried out. At operation the pancreas was carefully examined to find out the presence of any Zollinger-Ellison tumour.

Preoperative barium meal investigations of stomach and duodenum in 70 cases revealed tender deformed duodenal cap in 49 patients and pyloric stenosis in 21 patients. Out of the 49 patients, 18 patients had intractable ulcer and had no relief with medical treatment. They were also keen on being treated surgically on financial grounds. The remaining 31 patients had history of haemorrhages from ulcer in the form of melaena, which was controlled with conservative treatment and blood transfusion. None of these bleeders had massive or catastrophic haemorrhage. One patient had a posterior ulcer penetrating into the common bile duct, producing cholecysto-duodenal fistula (Fig. 1). The ulcer and fistula healed after vagotomy with posterior gastrojejunostomy (Fig. 2). In another patient there was chronic duodenal ulcer with stones in the gall-bladder. In this case vagotomy with posterior gastrojejunostomy and cholecystectomy with appendicectomy was done and the patient made uneventful recovery.

MANAGEMENT

Surgical technique—Left paramedian incision was used in all patients and it gave very good exposure of the oesophageal hiatus.

After doing laparotomy a Deaver retractor was placed just underneath the left lobe of the liver. By gradual upward pull over the left lobe of the liver and downward traction over the oesophagus by pulling the stomach downward, forward and to the left the cardio-oesophageal junction and abdominal part of the oesophagus came under view in a very satisfactory way.

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Neil, cited by Mitra *et al., loc. cit*). It may be said therefore that 4 hours after stress though there were evidences of improvement in respect to ketosteroid and cholesterol contents, recovery in respect to ascorbic acid did not take place which might be due to greater utilisation of ascorbic acid for glucocroticoid synthesis (Mitra *et al., loc. cit.*). In Group C animals the ascorbic acid content of the cortex was normal in a few (3) animals and it was diminished in the majority (13). In the medulla it was normal in the majority of the animals (13) and diminished in a few (3). From this it is clear that repletion of ascorbic acid in the cortex occurs later than ketosteroid and cholesterol. But there is evidence of early repletion of ascorbic acid in the medulla than cortex which might be due to greater demand of the cortex for the substance than medullla. Mitra *et al.* (*loc. cit.*) also reported similar observations.

In comparison to the findings in the control group, neutral fat was normal in zona glomerulosa, but it was markedly diminished in zona fasciculata and zona reticularis in most of the animals of Group A. The findings in Group B in respect to this material did not significantly differ from that in Group A. In Group C animals, neutral fat content was normal in all the zones in all the animals except slight diminution in zona fasciculata in 2. These findings indicate that though neutral fat was studied to have an idea about the state of activity of the different regions of adrenals, it did not help much in this respect. The zona glomerulosa of Group B animals on the basis of ketosteroid, cholesterol and ascorbic acid contents showed evidences of activities but the neutral fat content in it was normal. It, however, indicated the state of activity in zona fasciculata and zona reticularis. Selye (1950b) and Mitra *et al.* (*loc cit.*) also reported loss of lipoid granules under similar circumstances.

In all the Group A animals, noradrenaline in the adrenal medulla was diminished slightly or moderately in comparison to the control group and in Group B animals it diminished further. In Group C animals, the noradrenaline content, though increased as compared to Groups A and B, was not completely replenished. The results of this study suggest that 2 and 4 hours after stress there is greater liberation of noradrenaline from the adrenal medulla. Selye (1950c) and Mitra *et al.* (*loc. cit.*) also reported similar findings.

SUMMARY AND CONCLUSION

The effect of heat stress on adrenal glands of rats has been studied.

Two hours after stress there probably occurs increased production of ACTH which acts on zona fasciculata and zona reticularis of the adrenal cortex resulting in increased secretion of glucocorticoids thereby producing diminished ketosteroid concentration in these regions.

Four hours after stress partial repletion of ketosteroid content of zona fasciculata and zona reticularis takes place while that of zona glomerulosa shows depletion suggesting increased secretion of aldosterone.

Sixteen hours after stress all the zones of the adrenal cortex return to normal in respect to ketosteroid concentration.

Cholesterol, ascorbic acid and neutral fat studies at different times also more or less corroborate the state of hormonal activities in different parts of the cortex as evidenced by respective ketosteroid concentration.

Two and 4 hours after stress there was evidence of increased noradrenaline liberation from the adrenal medulla and 16 hours after stress a tendency to repletion of this substance was noted.

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PRACTITIONERS' SERIES

Total Vagotomy and Gastrojejunostomy for Chronic Duodenal Ulcer

SALIL KUMAR MUKHERJEE*

During the period 1900 to 1925, surgeons tried to cure duodenal ulcer by neutralising the acid gastric juice by gastrojejunostomy. Unfortunately, ulcers developed in the jejunum and the incidence of jejunal ulcer after gastrojejunostomy for duodenal ulcer was more than 50 per cent.

In 1940, vagotomy as a treatment of duodenal ulcer came into clinical practice. It was at first carried out by supra-diaphragmatic approach without any drainage operation on the stomach. It was observed that vagotomy diminishes gastric acidity and impairs gastric motility, but leads to antral stasis and more gastrin liberation by pyloric antrum which in its turn develops recurrent ulcer, particularly at the lesser curvature of the stomach. Dragstedt (1942) revealed the role of vagus nerves in the treatment of duodenal ulcer and established the role of correct vagotomy to cure it.

In an attempt to determine preoperatively the effect of vagotomy on gastric secretion, Gillespie and Kay (1961) evaluated the relative importance of vagal drive in duodenal ulcer patients by measuring the reduction of acid secretion following pharmacological blockade of vagi, i.e., 'medical vagotomy'. Johnston *et al.* (1966) found the test significant when a large number of patients were assessed but it was not sufficiently accurate in the preoperative assessment of individual patients. According to Jordan (1968), "The reduction in gastric secretion achieved by vagotomy was frequently underestimated on the basis of 'medical vagotomy' and predictions in individual cases were sufficiently inaccurate to diminish the usefulness of the test as a means of selecting those patients who would most benefit by vagotomy".

In 1950, sub-diaphragmatic vagotomy with gastrojejunostomy was started as the treatment of duodenal ulcer with satisfactory results.

Vagotomy with gastrojejunostomy or pyloroplasty has emerged as the preferred operation for duodenal ulcer as it carries a very low mortality and morbidity rate (Woodward, 1959).

MATERIAL

In the surgical units at the District Hospitals, Midnapore, and B. S. Medical College and Hospitals, Bankura, 70 patients with duodenal ulcer were treated with vagotomy and posterior gastrojejunostomy. The average duration of illness of these patients varied between 10 and 16 years. Posterior gastrojejunostomy was preferred for gastric drainage because the duodenum was so adherent and scarred that safe pyloroplasty could not be envisaged. These cases were followed up for varying periods—18 months to 6 years.

INVESTIGATIONS

In all patients preoperative alcoholic fractional test meal studies and barium meal investigation of stomach and duodenum were carried out. In gastric analysis for acid level study of these patients, attempts were made not only to make the diagnosis of duodenal ulcer but also to exclude Zollinger-Ellison syndrome For the latter, conventional atropine suppression test and maximum histamine stimulation test were carried out. At operation the pancreas was carefully examined to find out the presence of any Zollinger-Ellison tumour.

Preoperative barium meal investigations of stomach and duodenum in 70 cases revealed tender deformed duodenal cap in 49 patients and pyloric stenosis in 21 patients. Out of the 49 patients, 18 patients had intractable ulcer and had no relief with medical treatment. They were also keen on being treated surgically on financial grounds. The remaining 31 patients had history of haemorrhages from ulcer in the form of melaena, which was controlled with conservative treatment and blood transfusion. None of these bleeders had massive or catastrophic haemorrhage. One patient had a posterior ulcer penetrating into the common bile duct, producing cholecysto-duodenal fistula (Fig. 1). The ulcer and fistula healed after vagotomy with posterior gastrojejunostomy (Fig. 2). In another patient there was chronic duodenal ulcer with stones in the gall-bladder. In this case vagotomy with posterior gastrojejunostomy and cholecystectomy with appendicectomy was done and the patient made uneventful recovery.

MANAGEMENT

Surgical technique—Left paramedian incision was used in all patients and it gave very good exposure of the oesophageal hiatus.

After doing laparotomy a Deaver retractor was placed just underneath the left lobe of the liver. By gradual upward pull over the left lobe of the liver and downward traction over the oesophagus by pulling the stomach downward, forward and to the left the cardio-oesophageal junction and abdominal part of the oesophagus came under view in a very satisfactory way.

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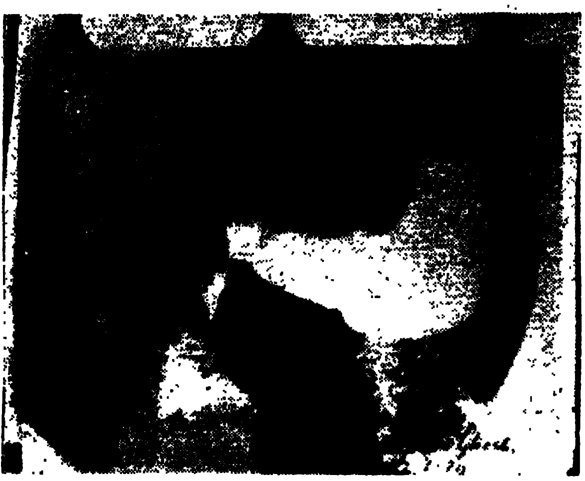

Fig. 1—Showing Barium Meal Series from a Case of Chronic Duodenal Ulcer with Deformed Duodenal Cap and Passage of Barium from Duodenum into the Common Bile Duct

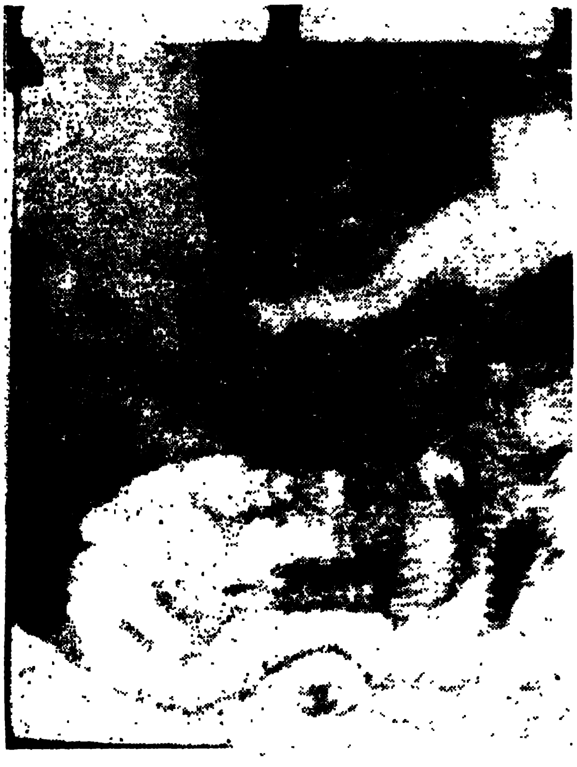

Fig. 2—Showing Barium Series from the Same Case as in Fig. 1 after Vagotomy and Gastrojejunostomy with Barium Passing both through the Gastrojejunal Stoma and Duodenum

The peritoneum over the oesophageal hiatus was incised and the oesophagus was dissected free by blunt dissection.

As traction was applied to the oesophagus by pulling down the stomach, the vagus nerves could easily be palpated as tense cords anterior and posterior to the oesophagus. These nerves were dissected free and transected. Careful search was always made in the wall of the oesophagus and perioesophageal tissue for any accessory vagal fibres. This procedure is considered as very important because incomplete vagotomy could result in recurrent ulcer. Sometimes the posterior vagus nerve may not be very close to the posterior oesophageal wall and it might give the impression that it is absent. In that case the posterior vagus nerve could be found medial to and behind the fibres of the right crus of the diaphargm. It should be isolated and transected. Repair of the hiatus is not necessary at all provided mobilisation of the oesophagus is carried out very carefully. Repair of the hiatus was not done in any patient of this series.

Posterior isoperistaltic gastrojejunostomy was done in all patients for gastric drainage as the duodenum was scarred and contracted due to ulcer of long duration. Gastrojejunal anastomosis was carried out in 2 layers very carefully to avoid stenosis at the stoma.

Decompression was done by nasogastric suction and there was no incidence of gastric atony and chest complication due to its use. Nasogastric suction was discontinued usually on the 3rd and 4th postoperative days.

Postoperative management—Nasogastric suction for gastric decompression was necessary for 3-4 days. During this period fluid replacement was maintained by intravenous route. A liquid diet was started on the 4th postoperative day and soft general diet was provided on the 7th postoperative day. None of these patients required any special dietary restriction or medication after operation. All patients were advised to avoid beverages to eliminate the possibility of postprandial syndrome. Mild postprandial syndrome was observed in 30 patients and it was controlled with restriction of carbohydrate and liquid intake with meals.

Post-vagotomy diarrhoea was observed in 46 patients. In 2 patients it was severe but controlled well with propantheline bromide. In the remaining 44 patients diarrhoea was mild and they did not require any drug. They adjusted well in 10 days time. About 18 patients had severe constipation before operation but they got back their normal bowel habits after operation.

Postopertive acid studies with insulin-induced hypoglycaemia was done in all patients 6 weeks after operation and repeated after 3 months.

In none of the patients hypersecretion was detected. Still it is very difficult to be sure that vagotomy was complete in all patients as they could not be followed up for longer periods and repeated acid studies after insulin-induced hypoglycaemia could not be carried out after intervals of 3 months.

All patients were discharged after operation on the 12th to 14th postoperative day. One patient died on the 11th postoperative day due to flaring up of old bilateral pulmonary tuberculosis. None of the patients had symptoms of stomal ulcer.

DISCUSSION

All the 70 patients in this series were hypersecretors but they revealed flexibility with atropine suppression test and equivocal response to histamine test. Duodenal ulcer was 6 times more common in men (60 cases) than in women (10 cases). They were all used to highly spiced food, and a majority of the male subjects were alcoholic. Haemorrhage from ulcer was the predominant complication in male subjects and pyloric stenosis was the predominant one in females.

That excessive gastric acidity is the cause of the development of duodenal ulcer is an established fact. Vagus nerves exert their influence on gastric secretion via 2 pathways: (1) Direct stimulation of parietal cell mass in the body and fundus of stomach. (2) Indirect stimulation of the parietal cell mass mediated by gastrin (induced by the vagus), a hormone produced by the pyloric antrum. So, complete vagotomy can lower gastric acidity both directly by inhibiting the secretory activity of the parietal cell mass and indirectly by inhibiting gastrin formation by the pyloric antrum.

Vagotomy also inhibits gastric motility and causes gastric stasis. Gastric and antral stasis stimulates the pyloric antrum, increases the production of gastrin which again stimulates the parietal cell mass, increases the acidity in the gastric juice and thereby produces recurrent ulcers, particularly in the lesser curvature of the stomach. So, vagotomy alone defeats its own purpose.

Latarjet (1922) rightly pointed out the value of gastric drainage after vagotomy to prevent gastric stasis, antral stimulation and further gastric acidity leading to the developmnt of recurrent ulcers.

In the present series of 70 patients posterior gastrojejunostomy has been preferred to gastric drainage. Pyloroplasty was considered unsafe because of excessive scarring, adhesion and fixation of duodenum.

Physiologically pyloroplasty as a method of gastric drainage appears to be more sound than gastrojejunostomy.

Gastrojejunostomy, as a method of gastric drainage, raises the pH of the gastric juice by reflux of alkaline duodenal and jejunal contents and thereby stimulates the pyloric antrum to produce more gastrin which stimulates the parietal cell mass, increases the gastric acidity and aggravates tendency for the development of ulcer in the jejunum.

If the physiological behaviour of the pyloric antrum in relation to pH of the gastric juice be correct, 2 questions will remain with us: (1) Whether one is justified to treat the duodenal ulcer with antacids? (2) Would the operation vagotomy with pyloroplasty stand the test of ulcer recurrence any better than vagotomy and posterior gastrojejunostomy? In the present series 70 patients were treated with total vagotomy and posterior gastrojejunostomy. None of them so far has reported any symptoms of stomal ulcer, and insulin-induced hypoglycaemia did not reveal rise of acid level in gastric juice after operation.

Capacity for food and nutritional deficiencies pose a great problem for all patients subjected to surgery for duodenal ulcer. Capacity for food after operation among the Indian patients is a special problem, particularly with those who are from the rural areas as they are accustomed to 2-3 meals a day. So if the capacity of stomach is reduced they become handicapped. Vagotomy with gastric drainage compared with subtotal gastrectomy is considered as a more suitable procedure; as with the former method patients maintain not only better capacity for food but also there is less chance of nutritional disturbances than with the latter method.

Tovey (1969) also has shown that Indian patients show gain in weight and maintain better capacity for food with vagotomy and gastric drainage than with partial gastrectomy. In his experience pyloroplasty has not shown much advantage over gastrojejunostomy as a method of gastric drainage, particularly in relation to nutritional disturbances after operation, though deficiencies of calcium and iron might occur after gastrojejunostomy; however, it is too early to confirm it. According to Wastell (1967) vagotomy and pyloroplasty probably results in a lesser metabolic derangement than vagotomy and gastrojejunostomy, but it is too early to give a definite opinion on it. It is, however, true that both are better than any form, of gastrectomy. He has pointed out that however severe the metabolic defect after operation for duodenal ulcer may be, deficiency states are rare in the face of adequate dietary intake.

SUMMARY

Seventy patients suffering from duodenal ulcer were subjected to operative treatment, namely vagotomy with gastrojejunostomy. The possibility of Zollinger-Ellison syndrome was excluded by atropine suppression test, histamine test and rou-

tine careful examination of the pancreas at operation. The technique of vagotomy has been described. Posterior gastrojejunostomy was done in all patients for gastric drainage. Physiological value of pyloroplasty as a method of gastric drainage has been considered in relation to gastrojejunostomy.

Vagotomy and posterior gastrojejunostomy can be considered as safe and standard operation for very chronic scarred and fixed duodenal ulcer of long duration. Mortality rate is very low (1 in 70). Morbidity rate is practically nil. Duration of stay in the hospital is short. Patients usually go back to their work after a maximum period of 3 weeks.

ACKNOWLEDGMENT

The author is indebted to Professor K. P. Sengupta, Principal and Superintendent, Bankura Sammilani Medical College and Hospitals, Bankura, for his kind help, advice, guidance and permission to publish this paper. Sincere thanks are also due to Professor B. Bhattacharya, Bankura Sammilani Medical College and Hospitals, and Dr. S. N. Kar, Chief Medical Officer of Health, Midnapore, for their kind permission to review the case records.

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CASE NOTES

1

Stomatitis, Agranulocytosis and Hepatitis due to Phenindione Sensitivity

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S. S. L. SRIVASTAVA****

Increasing awareness of the sensitivity reactions to phenindione with fatal outcome at times has led many physicians to suggest to abandon its use as an anticoagulant (Garnett *et al.*, 1962; Davies, 1965; Menon and Burrell, 1966). Soulier and Guegen (1947) who first used phenindione reported scarlatiniform rashes, polydypsia and polyuria as side effects. Perkins (1962b) reviewed 138 cases of phenindione sensitivity; the commonest complication was of skin reaction in 104 patients. There were 20 patients with granulocytopaenia or agranulocytosis, 12 with hepatitis, 5 with nephropathy and 2 with thrombocytopaenia. Diarrhoea with or without steatorrhoea was present in 21 cases and stomatitis in 14 patients. Less common manifestations were vomiting, conjunctivitis, lymphadenopathy, mistiness of vision, loss of hair and gangrene of breast. Recently many other reactions attributable to phenindione have been further noted, e.g., fatal myocarditis (Kerwin, 1964), pancytopaenia (Mohamed, 1965), haemorrhagic ulcerative colitis (Tanser and Keat, 1966), paralytic ileus (Menon, 1966; Nash, 1966) and neuropathy (Mehrotra, 1967).

The incidence of adverse reactions to phenindione is difficult to appraise; however individual reports vary from 0.1 per cent (Ager and Ingram, 1957) to 10.7 per cent (Stafford, 1961).

The following report describes a case of severe reactions to phenindione in the form of stomatitis, agranulocytosis and hepatitis in which recovery occurred.

CASE REPORT

A 42-year-old male was admitted on March 12, 1969 with acute coronary insufficiency and left ventricular failure. In 1962 he had suffered from right sided ureteric colic and had passed a stone per urethra. Streptomycin therapy administered then had provoked allergic manifestations after a total dose of 7 G. There was no family history of allergy. He received digoxin, frusemide, phenobarbitone and aminophylline along with salt restricted diet. Pethidine was also administered as and when required. Initial laboratory findings revealed : haemoglobin, 15.5 G. per cent; white blood cells, 9,500/ c.mm. (neutrophils, 54 per cent and lymphocytes, 46 per cent) E.S.R., 6 mm. in 1 hour (Wintrobe). The number and morphology of platelets appeared normal on serial blood films. Blood count on 2 more occasions on the above therapy revealed normal results. The urine examination was normal. S.G.O.T. and S.G.P.T., repeated on several occasions, ranged between normal limits. Blood urea, serum cholesterol and post-prandial blood sugar were within normal limits. Blood W.R., V.D.R.L. and tests for L.E. cells were all negative. X-ray chest was within normal limits. Electrocardiogram showed changes suggestive of posterior myocardial ischaemia.

The patient apparently improved initially but he continued to complain of recurrent attacks of typical precordial pain radiating down towards the left arm. On 15 April, phenindione therapy was introduced and given on an average dose of 100 mg. daily. Five days later, on 20 April, the patient complained of having a few painful ulcers in mouth and tongue and temperature rose to 103° F. Within next 2 days it progressed to an extensive stomatitis, pharyngitis and gingivitis resulting in marked dysphagia. Associated with this peripheral circulatory failure supervened leading to an extremely fast deterioration of the general condition. There was no hepato-

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splenomegaly or lymphadenopathy. Leucocyte count at this stage was 1200/c.mm. with polymorphs 2 per cent, lymphocytes 68 per cent and monocytes 8 per cent. Platelets were increased and a large number of target cells was seen on blood smear examination. Bone marrow aspirate showed marked reduction of myeloid series of cells with relative erythroid hyperplasia. Differential count revealed blast cells 7 per cent, myelocytes 2 per cent, metamyelocytes 6 per cent, lymphocytes 15 per cent and normoblasts (in all stages of maturity) 70 per cent. Megakaryocytes and platelets were increased. Prothrombin time was 37 seconds (control, 17 seconds). Liver function tests were normal.

Phenindione and other drugs were discontinued from 23 April, and the patient was treated with dexamethasone and erythromycin. Besides these, resuscitative measures were undertaken to correct the peripheral circulatory failure and whole blood transfusions of 300 ml. each were given on 3 consecutive days. Meticulous care was taken to isolate the patient. Culture of throat and mouth swabs available by this time showed *Pseudomonas pyocyaneus* sensitive to streptomycin only. Blood and urine cultures were negative. Erythromycin was, therefore, replaced by streptomycin, of course very cautiously in view of previous history of allergy. Subsequent cultures from the ulcers in mouth and throat on several occasions grew the same organisms which were every time found to be sensitive to streptomycin. Leucocyte count repeated daily during next week upto 29 April did not show any sign of improvement; once on 26 April, there was complete absence of polymorphs from peripheral blood. However, dramatic improvement in the patient's condition occurred on 30 April when temperature which was ranging between 101°F to 104°F came to normal and peripheral circulatory failure subsided. Leucocyte count showed 40 per cent polymorphs, 59 per cent lymphocytes and 1 per cent basophils.

All appeared to be going well when on 30 April, urine examination showed 1.4 per cent sugar with a blood sugar level of 295 mg. per cent. This was controlled with 20 units of soluble insulin twice a day. On the same day doubtful jaundice appeared for the first time but there was no hepatomegaly. Liver function tests revealed abnormal results: serum bilirubin, 1.8 mg. per cent;

TABLE 1—SHOWING CLINICOPATHOLOGICAL FEATURES OF THE PRESENT CASE COMPARED WITH 10 OTHERS REPORTED IN THE LITERATURE HAVING BLOOD DYSCRASIA AND HEPATITIS DUE TO PHENINDIONE SENSITIVITY

Authors	Day of onset of symptoms	Day of onset of jaundice	W.B.C. count per c.mm.	Polymorphs per cent	Bone marrow	Other features
Kirkeby (1954)	28	34	3,000	0	Hypoplasia of granulocyte elements with lack of myeloid maturation	Fever, skin reaction, stomatitis, died of uraemia
Makous and Veer (1954)	16	30	3,100	80	—	Fever, rash, polyuria and albuminuria
Burns and Desmond (*loc. cit.*)	27	30	4,600	0	—	Fever, skin reaction, stomatitis, pharyngitis, atypical monocytes, died
Wallace (1960)	33	42	5,000	28	—	Fever, skin reaction, drowsiness
Tashijian and Leddy (*loc. cit.*)	56	56	1,600	1	—	Fever, recovery with leukaemoid reaction
Portal and Emanuel (1961)	38	42	4,000	6	—	Fever, rash, adenopathy
Perkins (1962a) (i)	26	28	3,200	79	—	Fever, dermatitis, adenopathy, conjunctivitis, atypical monocytes
(ii)	28	34	6,900	46	—	Eosinophil infiltration and lipochrome pigmentation in liver
Mohamed (*loc. cit.*)	8	18	800	—	Generalised aplasia	Dermatitis, dysphagia, diarrhoea, fever: liver biopsy—cellular regeneration and hyperplasia of Kupffer's cells
Menon and Burrell (*loc. cit.*)	20	22	4,500	—	—	Fever, dermatitis and stomatitis
Present case	5	15	1,150	0	Hypoplasia of myeloid element with relative erythroid hyperplasia	Fever, stomatitis, pharyngitis, gingivitis, peripheral circulatory failure

Blood values showing maximum abnormalities are given thymol turbidity, 40 units; S.G.O.T., 25 units; S.G.P.T.; 130 units; and alkaline phosphatase, 4 units/100 ml. Reassessment of these tests on 7th, 10th and 13th days of this episode continued to show abnormal thymol turbidity though in declining severity; the other tests became normal. Dexamethasone was gradually tapered off; insulin also had to be gradually curtailed till 13 May when both these drugs and streptomycin were totally stopped and the patient was discharged. He was left with markedly loose teeth owing to the infection which he had suffered from. The peripheral blood examination and gulcose tolerance tests were normal and remained so for another period of 4 months during his followup in out-patients' clinic. Digoxin, frusemide, aminophylline and phenobarbitone when reintroduced one by one did not provoke any untoward reaction. Phenindione was not given because of the possibility of life threatening sequalae occurring again.

Discussion

The clinicopathological features of the present case along with 10 others having agranulocytosis or leucopaenia and hepatitis reported so far in the literature are given in Table 1. The onset of adverse reaction to phenindione as early as on the 5th day in this patient was a striking feature. In all previously reported patients with both leucopaenia or agranulocytosis and hepatitis the initial symptom had appeared after the 3rd week except only in one instance (Mohamed, *loc. cit.*) where it was observed on the 8th day. The sensitivity reaction in the present case was heralded by stomatitis, pharyngitis and fever which was followed a few days later by agranulocytosis progressing further to hepatitis which was comparable to the sequence of events noted in the patient reported by Mohamed (*loc. cit.*). Perkins (1962b) in his review of 138 cases of phenindione sensitivity also noted frequent association of blood dyscrasia with jaundice. Hepatitis in all reported cases except that of Tashijian and Leddy (1960) was not the initial toxic manifestation but appeared 2-14 days after the appearance of the first symptom. Perkins (1962a) has suggested that enterohepatic circulation of phenindione which results in prolonged concentration of phenindione in liver might be responsible for the late onset of hepatitis. Mild skin rash to severe exfoliative dermatitis was the predominant feature in all reported cases except in that of Tashijian and Leddy (*loc. cit.*) and the present case.

The depression of white cells varied from mixed granulocytopaenia to severe agranulocytosis as noted in the present case. Eosinophilia was present in 6 cases. Atypical monocytes were found in 2 cases resembling infectious mononucleosis. Increase in monocyte count was present in this case also though the morphology of the monocytes was normal. Bone marrow studies done in a few cases revealed maturation arrest of myeloid series of cells or generalised aplastic reaction or aplasia of only myeloid tissue.

The features of hepatitis in the present case were comparable to those reported by other workers. Biochemical reports were nonspecific; the features might have been compatible with intrahepatic cholestasis or with hepatocellular damage as in the present case or with both. Hyperglycaemia and glycosuria observed in this patient were probably the outcome of dexamethasone therapy as they disappeared after the discontinuance of the drug.

What determines the sensitivity reaction to a drug in any particular patient is difficult to understand. It has been observed that a previous adverse drug reaction might predispose to further drug reactions even if the nature of the drug is different (Smith *et al.*, 1966; Hurwitz, 1969). This patient had sensitivity reaction to streptomycin in the past. Similarly, it is difficult to assess the factors responsible for the occurrence of agranulocytosis or hepatitis in one individual and for nephropathy or skin reactions in the other. The mechanism involved in phenindione sensitivity reactions has not been well understood. Burns and Desmond (1958) suggested it to be due to the toxic benzene ring contained in phenindione. Perkins (1962b) suggested that the toxic manifestation on liver, kidney and bone marrow might be due to the interference with energy transfer metabolism as seen in experimental animals by Soderberg and Wachtmeister (1956). Immunological reaction initiated by phenindione involving the blood cells either peripherally or in the bone marrow has been alternatively suggested (Mohamed, *loc. cit.*). This hypothesis seems unlikely to be responsible in view of the fact that corticosteroid therapy which apparently inhibits immunological reactions is not always successful and that cases have survived even without its use. It seems that mechanisms other than immunological reaction are responsible for the phenomenon of phenindione sensitivity. There is no evidence to suggest that interaction with other drugs used in this patient were in any way responsible for phenindione sensitivity.

Summary

A case of phenindione sensitivity presenting with stomatitis, agranulocytosis and hepatitis has been presented and the ralevant literature reviewed.

Acknowledgment

We would like to thank the Superintendent, J.N. Medical College Hospital, A.M.U., Aligarh, for kindly allowing us to publish this report.

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2

Acute Cerebellar Syndrome

(Manifestation of Infectious Mononucleosis)

T. N. MEHROTRA*   K. K. DWIVEDI**

Involvement of nervous system in infectious mononucleosis although uncommon is well recognised (Gautier-Smith, 1965; Silverstien and Stienberg, 1972; Bernstein and Wolff, 1950; Boughton, 1970). The incidence is about 1 per cent. Lately, there has been an increasing awareness that the neurological manifestations may be the presenting or in fact the only clinical manifestation of the disease.

The commoner neurological complications include lymphocytic meningitis, encephalomyelitis, polyneuritis and mononeuritis. Ophthalmoplegia, optic neuritis and facial palsy have also been described. Cases of encephalomyelitis with cerebellar syndrome have been reported, but those presenting as cerebellar syndrome only are rare (Dowling and Von Slyck; 1966; Bergin, 1960; Gilbert and Cultras, 1972). Here we describe 2 young patients who presented with neurological features of cerebellar syndrome of sudden onset without any clinical evidence of infectious mononucleosis.

Case Reports

Case 1:

A 18-year-old male was admitted to the hospital with [illegible] days' history of vertigo and progressive unsteadiness of both upper and lower limbs. Two days prior to admission, his speech became slurred and a day later he became confused.

On admission, he was confused, disorientated and had cerebellar dysarthria and nystagmus. He revealed marked ataxia of both upper and lower limbs. There was no other abnormality in the nervous, cardiovascular, gastrointestinal and respiratory systems. His temperature was normal and he had no lymph gland enlargement.

Investigation—Examination of the peripheral blood revealed atypical lymphocytosis, and Paul-Bunnell test was positive. The cerebrospinal fluid showed a protein content of 50 mg. per 100 ml. rising in the 1st week to 100 mg. per 100 ml. with no lymphocytes and a normal sugar level.

Course—He made a steady clinical improvement without any treatment. Twelve days after admission he started walking without any support, and by the next 2 weeks he became free of all the symptoms and signs. He did not show any subjective or objective evidence of the disease when examined after 3 months.

Case 2:

A 25-year-old male, presented with slurring of speech, and unsteadiness of gait of 4 days' duration. He denied any history of headache or fever. On examination, he was a young man of average build with a pulse rate of 74/minute and B.P. of 174/70 mm. Hg. Lymph glands were not palpable and temperature was normal (98°F.). Examination of nervous system revealed cerebellar dysarthria and bilateral horizontal nystagmus. There was marked ataxia of upper as well as of lower limbs, and he could not even stand up without support. There was no other abnormal sign either in nervous system or in gastrointestinal, cardiovascular and respiratory systems.

Investigation—Examination of peripheral blood revealed atypical lymphocytosis, and Paul-Bunnell test was positive. CSF examination showed protein content of 45 mg. per cent with normal sugar and chloride contents. There were 8 cells, all lymphocytes. This cell count went up to 25 by the end of the 1st week and protein fell to normal.

Progress—He made an uneventful recovery within 2 weeks without any treatment. Seven weeks after admission he was completely free of symptoms and signs.

Comments

It is commonly accepted that infectious mononucleosis is associated with infection with E.B. virus and that the disease is accompanied by a significant immune response to the virus. It is because of this that neurological complications are of considerable interest. Infectious mononucleosis is one of the very few virus infections involving central nervous system in which the diagnosis can be made easily by blood examination.

The commonly believed theory is that infectious mononucleosis represents a primary infection in non-immune subjects but it is possible that it may represent a reactivation phenomenon of an infection acquired earlier in the life like herpetic infection (Joncas, 1972).

The diagnosis of infectious mononucleosis in both the patients was established on haematological and serological (Paul-Bunnell/Davidson) criteria, though both the cases did not reveal any of the known clinical features like sore throat, fever, lymphadenopathy, hepatomegaly and splenomegaly. This emphasises the importance and significance of haematological investigations and Paul-Bunnell tests in patients presenting with neurological deficit of acute onset.

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3

Zollinger-Ellison Syndrome

(With Hyperparathyroidism)

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The association of peptic ulcer and non-insulin secreting islet cell tumour of the pancreas was first described by Strom (1952). The publication of 2 cases in detail by Zollinger and Ellison (1955) with the triad of (a) fulminant peptic ulcer disease (recurring in spite of repeated gastric surgery), (b) severe gastric hypersecretion, and (c) non-beta islet cell tumour, marked the birth of the Zollinger-Ellison syndrome (ZES). Some patients with peptic ulcer, gastric hyperacidity and islet cell tumour of the pancreas, reported as early as 1945, probably had ZES (Rabinovitch and Achs, 1945; Sailer and Zimminger, 1946; Gordon and Olivetti, 1947; Brown *et al.*, 1950). Zollinger and Ellison (*loc. cit.*) were the first authors to hypothesise the possibility of hormone liberated by the tumour tissue being the cause of the disease. But their theory that glucagon was this hormone proved to be incorrect with the isolation and description of chemical nature of the hormone gastrin from the non-beta islet cell tumour tissue (Gregory *et al.*, 1960; Grossman *et al.*, 1961; Gregory *et al.*, 1969).

The number of published cases is increasing every year, particularly with the availability of specific tests for hypergastrinism, first by bio-assay (Uvnas and Emas, 1961; Lai, 1964; Moore *et al.*, 1967; Wilson *et al.*, 1968), and later by radio-immunoassay (McGuigan, 1968; Hansky and Cain, 1969; McGuigan and Trudeau, 1970; Yallow and Berson, 1970). ZES may account for less than 1 per cent of all cases of peptic ulcer disease. The disease may be manifested by only diarrhoea and steatorhoea, and gastric hypersecretion may remain in the range of ordinary duodenal ulcer disease. However hypergastraemia remains a constant feature, and hence these tumours are better called gastrinomas (Grossman, 1972).

Here we report a case of ZES associated with hyperparathyroidism, where a thyroid nodule was incidentally found.

Case Report

A 64-year-old Caucasian female first came to medical attention in 1964 with the complaint of epigastric pain. The pain used to be worse 3-4 hours after meals, and relieved by ingestion of antacids. Physical examination was unremarkable. An upper gastrointestinal barium series at that time showed an antral ulcer. This was managed medically. One year later she was admitted with acute abdominal pain and a perforated duodenal ulcer was diagnosed. She had an 80 per cent gastrectomy with Billroth II anastomosis. During this operation the pancreas was felt to be indurated and a biopsy of this organ was obtained. Histological examination showed this tissue to be an islet cell tumour (Fig. 1).

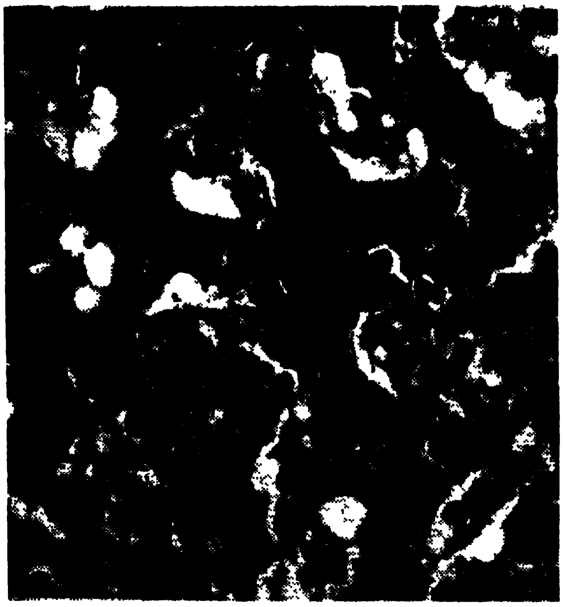

Fig. 1—Showing Histological Appearance of Pancreatic Islet Cell Tumour

Three years later, she again started to feel epigastric pain which was more severe than her original complaint An upper gastrointestinal series showed 2 large ulcers of the efferent jejunal loop. This was confirmed by endoscopy with a fiberoptic gastroduodenoscope (Fig. 2). The pain was abated by the ingestion of antacids and anticholinergic drugs during the 4 following years. Subsequently, she had to be readmitted for intractable pain.

She also complained of mild diarrhoea once or twice a month for several years, but this was not a major problem.

Physical examination at this stage showed a fairly nourished but pale female. An incidental thyroid nodule was observed without any pain, tenderness or bruit. The physical examination was otherwise unremarkable.

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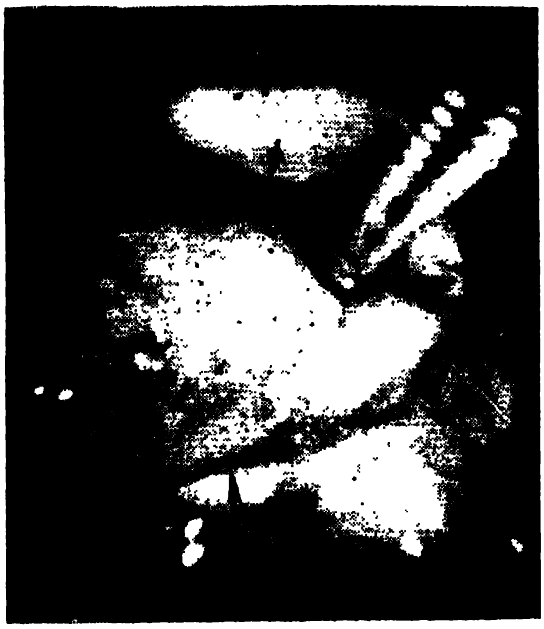

Fig. 2—Showing Endoscopic View of the Jejunal Ulcer

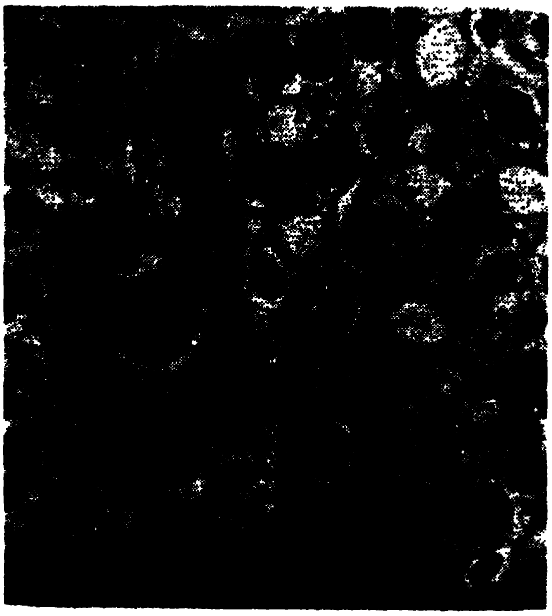

Fig. 3—Showing Histological Appearance of the Parathyroid Adenoma

Investigation—Her haemoglobin level on admission was 9 per cent, blood smear showed microcytosis and hypochromia, and guiac test for occult blood in stool was ++. She was found to have persistent hypercalcaemia, with calcium levels ranging between 11.4 and 12.4 mg. per cent (normal for this laboratory is 8.5 to 10.5 mg. per cent) in 6 different determinations. Serum inorganic phosphorus levels ranged between 2.4 and 3.2 mg. per cent (normal 3.5 to 5 mg. per cent). Serum chloride level was 107 m.Eq/litre and serum bicarbonate content was 20 m.Eq/litre. Twelve hour overnight gastric acid secretion was 120 m.Eq. One hour basal secretion of total acid was 20 m.Eq/hour. On maximal stimulation by betazole (1.75 mg./kg. body weight), maximal output was 40 m.Eq/hour. The thyroid nodule was found to be non-functional ("cold") on radio-iodine scanning. The fasting plasma gastrin level was 250 picogram/ml. (normal for this laboratory is up to 125 picogram/ml. for a patient with intact stomach). The level of plasma gastrin did not rise on 3 hour continuous infusion of intravenous calcium gluconate at the rate of 5 mg./kg. body weight, per hour.

Management—She underwent a neck exploration and a parathyroid adenoma was removed (Fig. 3). The thyroid nodule was also removed. During the 6 months following this operation her calcium level ranged between 8.4 and 9 mg. per cent. However, her gastric output was not shown to be decreased (basal 21 m.Eq/hour; post-betazole maximum output, 41 m.Eq/hour). Six months after the parathyroidectomy her plasma gastrin level was 125 picogram/ml. Intravenous calcium infusion at the rate of 5 mg./kg. body weight per hour, raised the plasma gastrin level to 250 picogram/ml. There was marked clinical improvement and the jejunal ulcers completely healed. Clinical improvement persists to date and the patient is being closely followed.

Discussion

Upper abdominal pain which was the main symptom of our patient, is the presenting feature of 70 to 95 per cent of all cases of ZES (Ellison and Wilson, 1964; Bonfils and Bader, 1970). The peak age incidence of this disease is in the third to fifth decade, though cases have been reported from 7 to 90 years of age (Cathcart *et al.*, 1969; Ellison and Wilson, 1967). Our patient was a female as were 40 per cent of all reported cases (Ellison and Wilson, 1964). Peptic perforation, which occurred one year after the initial presentation of this patient, may be the presenting feature in 18 per cent of cases of ZES (Ellison and Wilson, *loc. cit.*). Steatorrhoea and diarrhoea may be associated clinical features due to (a) direct inhibition of salt and water absorption in the small intestine by gastrin (Gingel *et al.*, 1968; Moshal *et al.*, 1970), (b) precipitation of bile salts and inactivation of pancreatic enzymes by large quantities of hydrochloric acid secreted in the stomach of these patients (Parker *et al.*, 1963), (c) damage of the small bowel mucosa by low pH (Shimoda *et al.*, 1968), (d) rapid intestinal transit which may (Logan and Connell, 1966), or may not (Bennett *et al.*, 1967) be the direct result of gastrin excess. Our patient complained of episodic diarrhoea, but steatorrhoea was absent.

Gastric acid secretory studies which are helpful in the diagnosis of ZES are: (a) 12 hour overnight secretion of total acid greater than 100 m.Eq (Ellison and Wilson, *loc. cit.*), (b) basal acid output (BAO) above 15 m.Eq per hour (Ayogi and Summerskill, 1966), (c) ratio of BAO and maximal acid output less than 0.6 (Sanchez *et al.*, 1972). All these criteria were satisfied in our patient, in spite of her having an 80 per cent gastrectomy.

The diagnosis of pancreatic islet cell tumour was made only after the initial operation by histological study of the surgical biopsy specimen obtained from the indurated areas of the pancreas. Diagnosis of gastrinoma may be difficult during surgical operation or even at autopsy because of their small size (Ptak and Kirsner, 1970), occasional extra-pancreatic location (Thomson *et al.*, 1968; Polak *et al.*, 1972), occasional presence of diffuse hyperplasia rather than discrete adenomata (Ellison and Wilson, *loc. cit.*), and difficulty of differentiation from argentaffinoma (Schulte *et al.*, 1969). However, hormone assay from an extract of the tumour can clinch the diagnosis in difficult cases (Berson and Yallow, 1971).

As is usual in ZES, the patient had to be readmitted for recurrence of abdominal pain due to jejunal ulceration. As the patient refused to be re-operated, she was followed cautiously on vigorous medical treatment. Although response to medical therapy is often poor in ZES, there has been no controlled trial proving this point (Isenberg *et al.*, 1972). Large, frequent doses of antacids may produce symptomatic relief (Schuster and Alexander, 1969), and anticholinergics administered in frequent doses can reduce acid secretion significantly in some cases of ZES (Lawrie *et al.*, 1966). Some authors feel that a cautious trial of medical therapy is justified in selected cases of ZES and surgery may be postponed unless the situation becomes intractable, or complications arise (Isenberg *et al.*, *loc. cit.*). Conservative therapy, in addition to limited surgery, such as subtotal gastrectomy has been suggested in those cases of ZES, where serum gastrin level is not very much elevated, that is around 250 picogram/ml. (Friesen, 1972). Attempts to treat poor risk patients by gastric irradiation (2200r) has been tried without encouraging results (Bank *et al.*, 1965). The ideal surgical therapy for ZES is total gastrectomy, except in cases where total excision of a solitary islet cell tumour of the pancreas is possible.

Involvement of other endocrine organs occurs in 10 to 40 per cent cases of ZES patients (Ellison and Wilson, *loc. cit.*; Way *et al.*, 1968). Association of ZES, parathyroid adenoma, and pituitary adenoma is known as Wermer's syndrome or multiple endocrine adenopathy, type I (MEA I). Non-functioning thyroid nodule, adrenal hyperplasia and lipomata may also be found in these cases (Wermer, 1963). A second type of MEA includes parathyroid adenoma, phaeochromocytoma and medullary carcinoma of the thyroid, but not pancreatic islet cell tumour. This is known as Sipple's syndrome or MEA II (Sipple, 1961). Parathyroid adenoma is the most common component (88 per cent) of MEA I (Ballard *et al.*, 1964). This was present in the patient reported here, but was diagnosed only during the second admission. Presence of hyperparathyroidism may affect the clinical manifestations of ZES, probably because hypercalcaemia increases plasma gastrin level and gastric acid output (Trudeau and McGuigan, 1969). Removal of parathyroid adenoma has been known to reduce gastric acid secretion and result in significant clinical improvement in some cases of ZES (Turbey and Passaro, 1972). In our patient, following the removal of parathyroid adenoma, the serum calcium level was reduced to normal range, and plasma gastrin level was reduced by 50 per cent. The plasma gastrin level in our case was not as high as that found in the usual cases of ZES. But 250 picogram/ml. must be considered a significantly high level in view of the fact that the antrum of the stomach, which is the major source of gastrin in normal people, had been totally removed in this patient. In addition to reduction in plasma gastrin level, the patient enjoyed a remarkable improvement following the removal of the parathyroid adenoma.

No significant decrease in gastric acid output could be demonstrated following parathyroid adenectomy. But in presence of Billroth II operation the assessment of gastric acid output is liable to be inaccurate.

Calcium infusion test has been found to be useful in those cases of ZES where the initial plasma gastrin level is not very high. Infusion of calcium gluconate intravenously for 3 hours at the rate of 5 mg./kg. body weight per hour increases the plasma gastrin level 2 to 3 times in ZES patients, thus making the differentiation from normals easier. In addition, there is a simultaneous rise in gastric acid output in these cases which equals quantitatively that obtained after maximal stimulation by histamine (Thompson *et al.*, 1972). In normal people the increment in plasma gastrin level and gastric acid output is only slight. In our patient there was no further elevation of plasma gastrin level following calcium infusion before the removal of the parathyroid adenoma. This was probably because of the already existing hypercalcaemic state. Calcium infusion test, repeated 6 months after removal of parathyroid adenoma, resulted in a two-fold increase in the plasma gastrin level. Similar striking results, following removal of parathyroid adenoma has been reported by others (Passaro *et al*, 1972).

Diagnosis of ZES should always be kept in mind in a case of intractable peptic ulcer disease. Timely measurement of plasma gastrin level is important in formulating therapy. Unfortunately, recurrence of ulceration after multiple operations for peptic ulcer often draws one's attention to this condition. Failure to recogni the disease may result in fatal outcome.

SUMMARY

A case of Zollinger-Ellison syndrome with parathyroid adenoma is reported. The patient had marked clinical improvement following excision of the parathyroid adenoma. A review of the literature is presented.

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4

Superior Mesenteric Artery Syndrome

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The essential feature of this condition is a partial obstruction of the 3rd part of the duodenum due to pressure by the superior mesenteric vessels and the mesenteric root. Wilkie (1921) was the first to draw attention to this condition as a definite clinical entity. Subsequently, the condition has been described by many workers (Simon and Lerner, 1962; Banerji, 1969; Spiro, 1970). The importance of the condition lies in its recognition as one of the causes of 'dyspepsia'.

Case Report

H. C. D., a 39-year-old Havildar, was admitted to hospital with history of dyspepsia of 13 years' duration. The main symptoms were epigastric discomfort, nausea and flatulence following meals, particularly heavy meals. The symptoms were episodic in nature and were at times associated with bilious vomiting. They were relieved by lying in the prone position.

The patient had been admitted previously to various hospitals on a number of occasions and diagnosed as a case of 'dyspepsia' and treated symptomatically. During one such admission, even a diagnosis of chronic duodenal ulcer was made. He used to get temporary relief but the symptoms recurred after a month or so.

There was no history of haematemesis or melaena, nor of diarrhoea or dysentery.

He was happily married, non-smoker, non-drinker and he had no special worries. There was no family history of peptic ulcer.

Clinical examination did not reveal any abnormality. There was no abdominal tenderness and no visible peristalsis was seen.

Investigation—Haemoglobin—12 G./100 ml., total leucocyte count—6000/c.mm. with polymorphs—59 per cent, lymphocytes—37 per cent, monocytes—1 per cent, eosinophils—3 per cent. Urine N.A.D. Stool—N.A.D. Test for occult blood—negative. Liver function tests were within normal limits. Augmented histamine test revealed evidence of hyperchlorhydria. Blood urea—

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20 mg./100 ml., serum sodium—130 m.Eq/l serum potassium—3.6 m.Eq/l serum chloride—99 m.Eq/l and Co$_2$ combining power—26 m.Eq/l.

On fluoroscopy, there was moderate dilatation of the 1st and 2nd parts of the duodenum, and a well-pronounced to and fro peristalsis was observed in this segment.

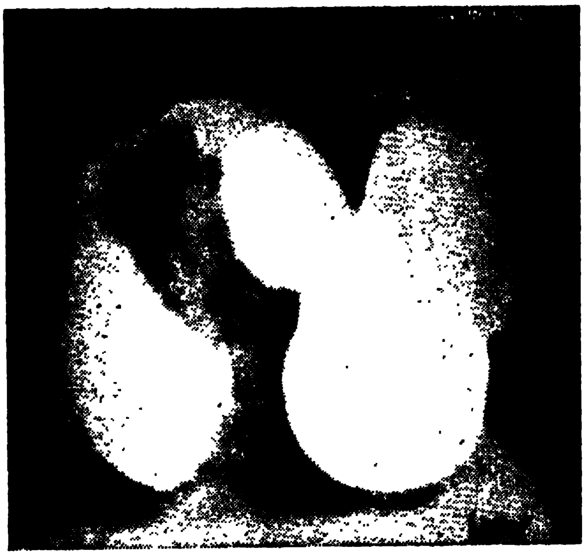

Fig. 1—Showing Duodenal Ileus up to the 3rd Part with Widely Spaced and Stretched Mucosal Folds, the Distal end of the Dilated Duodenal Segment Presents a more or less "Vertical Cut Off" Appearance at the 3rd Part

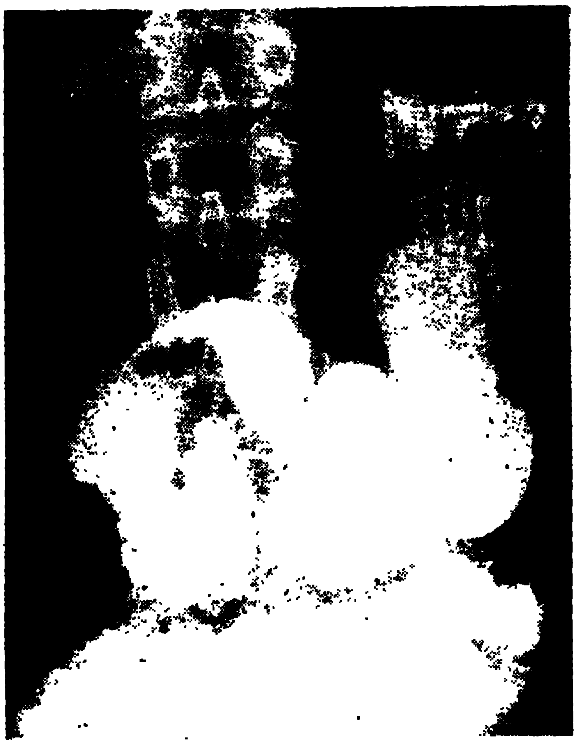

Fig. 2—Showing a Lateral Film with the Same Features in Fig. 1

In the spot x-ray films the following features were observed :

(a) Moderate degree of dilatation of the duodenal 'C' upto the 3rd part. (b) The duodenal bulb was normal and there was no evidence of duodenal ulcer. (c) The mucosal folds of the dilated duodenum were widely spaced and stretched (Figs. 1, 2). (d) The distal end of the dilated duodenal segment presented a more or less "vertical cut off" appearance at the 3rd part. That the obstruction was only partial was shown by the presence of some barium in the jejunal loops. (e) The patient was put in prone position with cushions arranged under the pelvis and chest so as to prevent any direct pressure on the abdomen and further spot films were taken. There was no duodenal dilatation or obstruction in this position.

Treatment—Treatment was mainly symptomatic. He got relief on lying in prone position. Adoption of knee-elbow position gave immediate relief whenever the symptoms were severe. In view of this no surgical treatment was advised.

Discussion

The superior mesenteric artery passes obliquely across the 3rd part of the duodenum. It will be appreciated that any condition which lessens the angle between this artery and the aorta can produce a partial blockage of the duodenum which is wedged in between the aorta and spine behind and the mesentery in front. The condition which may increase this angle may be either a congenital anomaly or visceroptosis producing a drag on the mesentery. The radiological features in these cases are quite impressive. Any manoeuvre which decreases the compression, relieves the obstruction immediately. The best way to achieve this is either putting the patient in knee-elbow position or in prone position with cushions under the pelvis and the chest.

The importance of recognition of superior mesenteric artery syndrome lies in the fact that it may be the cause of post-prandial fullness and epigastric pain in some cases which can be easily relieved by change in posture. It should be appreciated, however, that most of these cases where superior mesenteric artery occlusion can be demonstrated radiologically are asymptomatic.

Rarely, in cases where the dyspeptic symptoms persist in spite of adoption of some sort of genuflexion, duodenojejunostomy may have to be performed to bypass the obstruction.

It is important, however, to exclude other causes of dyspepsia in such cases before undertaking surgery.

Summary

A case of Superior mesenteric artery Syndrome presenting with 'dyspepsia', is reported.

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5

Peripheral Intracranial Aneurysm

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Intracranial aneurysms occurred much less commonly in this country (Ramamurthi, 1969). Even in the western countries where they were common, aneurysms were less frequently found on the distal portions of the intracranial arteries (Pool, 1971; Suzuki *et al.*, 1971). The present case of an aneurysm of the calloso-marginal branch of the anterior cerebral artery on the right side is reported in view of its extreme rarity.

CASE REPORT

T D., a young girl of 12, was admitted to the Neurosurgical Ward, S.S.K.M. Hospital, Institute of Postgraduate Medical Education and Research, Calcutta, on 3-11-1971 in an unconscious state. The course of events leading to this state was very brief. As stated by her parents, the girl had complained of severe headache 12 hours prior to admission. Headache was followed by rise of temperature, severe neck pain, repeated vomiting and unconsciousness. No significant history of past illness was available.

Examination—Examination on admission revealed a thinly built young girl in a state of coma Neck was rigid. Her temperature was 99.6°F. pulse rate 100/minute and respiration rate was 20/minute. Neurological examination revealed weakness of the right lateral rectus muscle. Both pupils were equal and reacting to light. Optic disc on the right showed early papilloedema. No other cranial nerve palsy was detected. Abdominal reflexes on the left were diminished. Tendon jerks on both sides were brisk. Right plantar reflex was flexor. Left plantar response was equivocal. A provisional diagnosis of subarachnoid haemorrhage was made. The patient was treated conservatively until her level of consciousness improved. Lumbar puncture was withheld as there was some suspicion of raised intracranial pressure (early papilloedema in the right eye). Plain x-ray of the skull did not reveal any abnormality. A right carotid angiogram (Figs. 1, 2) was performed on 8-11-1971. i.e., [illegible] days after admission. It revealed an aneurysm on the callosomarginal artery at the bifurcation of its branches and slight shift of the pericallosal artery to the left on the A.P. projection suggesting an intracranial haematoma as well.

Four days after the angiogram the patient had a sudden recurrence of headache, vomiting, increased neck stiffness, disorientation and drowsiness. Left plantar response was frankly upgoing. She, however, recovered from this serious setback with conservative treatment in about 2 weeks' time and was operated on 7-12-1971.

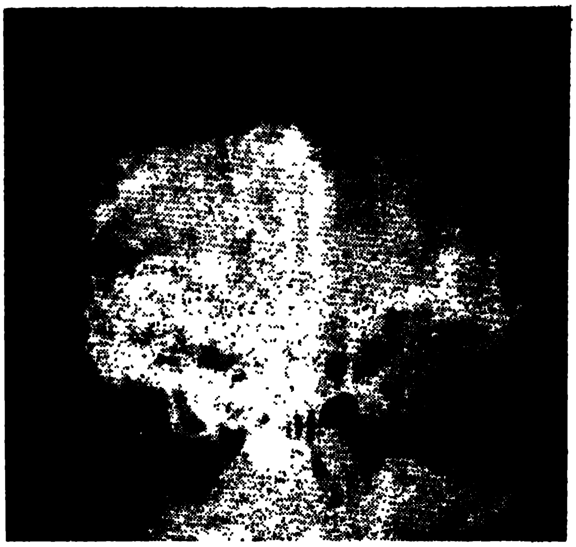

Fig. 1—Showing Aneurysm of Callosomarginal Artery with Slight Shift of Peri-Callosal Artery (PA View, Right Carotid Angiogram)

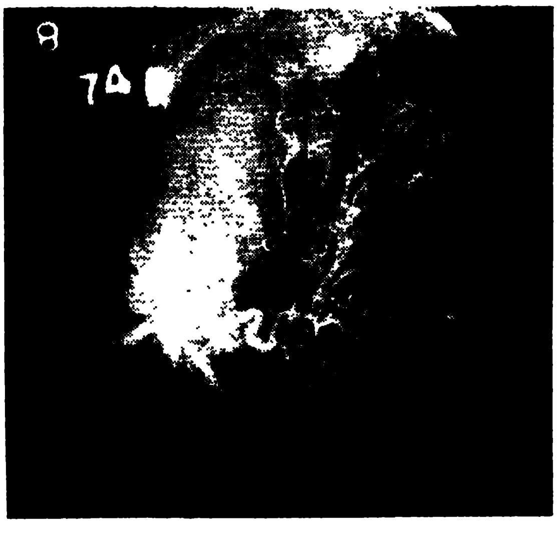

Fig. 2—Showing Callosomarginal Artery at the Bifurcation of its Branches (Lateral View, Right Carotid Angiogram)

Operation—A large frontoparietal osteoplastic craniotomy was performed on the right side—the medial limb of the incision being placed on the midline. On reflecting the dura, the frontal lobe was retracted laterally to expose the origin of the callosomarginal artery on the right. A temporary clip was placed on this vessel and exploration continued posteriorly to expose the aneurysm. The site of aneurysm was surrounded by yellowish discolouration on the medial surface of cerebral hemisphere suggesting a previous bleed. The brain, at this site, was adherent to the falx. The aneurysm could, however, be

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defined without much difficulty. It was rather globular in shape and no neck in the usual sense was definable. Three clips were used to occlude the vessels just proximal and distal to the sac. The temporary clip was then removed. The wound was closed after satisfactory haemostasis was achieved. Postoperative course was satisfactory. She made a rapid progress both in her general condition and in her neurological status. In about 10 days' time, the right lateral rectus palsy disappeared, papilloedema regressed and the left plantar response became flexor. On the 14th postoperative day (21-12-1971), right carotid angiogram was repeated. The aneurysm was no longer visible (Fig. 3).

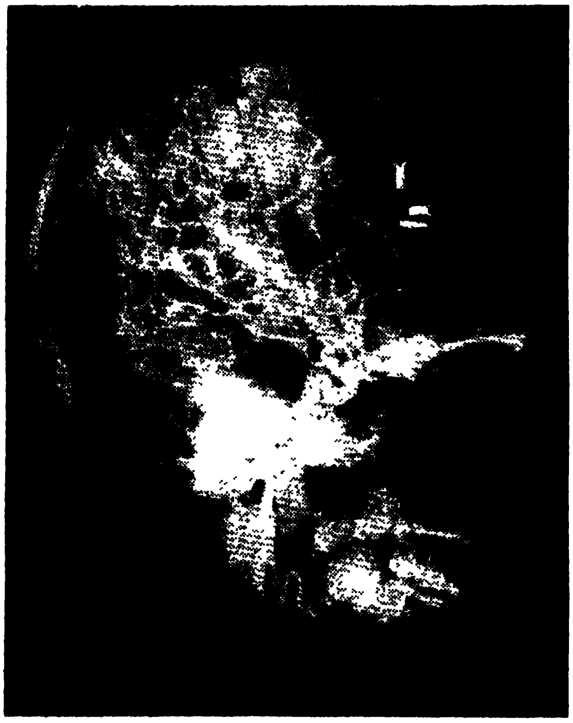

Fig. 3—Showing Postoperative Right Carotid Angiogram when the Aneurysm was no Longer Visible

The patient was discharged home on 1-1-1972. She is being followed up in the out-patients' clinic at regular intervals and has been found to be doing well.

Discussion

Aneurysms occurring peripherally on the intracranial arteries are rare. Locksley (1966) in his "Report on the co-operative study of intracranial aneurysms and subarachnoid haemorrhage" analysed the site distribution of single intracranial aneurysms. Out of 1695 cases of single aneurysms, the commonest specific aneurysm site was in the region of the anterior communicating artery (30 per cent) followed in decreasing order by the internal carotid-posterior communicating junction (25 per cent) and the region of the main middle cerebral branchings (13 per cent.) Break-up study of the aneurysms occurring in the anterior cerebral artery (total 895 cases) showed 69 cases (2.6 per cent) where aneurysms were situated distal to the anterior communicating artery.

Suzuki *et al.* (*loc. cit.*) surveyed the incidence of intracranial aneurysms in the neurosurgical clinics in Japan. They found 970 aneurysms (24.9 per cent) in the internal carotid artery and 809 (20.8 per cent) in the middle cerebral artery. They did not, however, mention any aneurysm occurring (except those on the anterior communicating artery) in the anterior cerebral arterial territory. According to Pool and Potts (1965), distal anterior cerebral aneurysms may originate close to the anterior communicating artery or more commonly in peripheral branches at the junction of the peri-callosal and callosomarginal arteries.

Fifteen cases of intracranial aneurysms were demonstrated angiographically amongst patients admitted to the Neurosurgical Wards, S.S.K.M. Hospital, during the last 5½ years (from the middle of 1966 to the end of 1972). In only one of them (the present case) the aneurysm was located distally on the callosomarginal artery. The remaining ones were located in the internal carotid (3 cases). internal carotid-posterior communicating junction (8 cases), middle cerebral (2 cases) and anterior communicating arteries (1 case).

Summary

A case of ruptured aneurysm of the callosomarginal branch of the right anterior cerebal artery and its management in a girl of 12 is reported in view of the rarity of the condition. A brief review of relevant literature is made

Acknowledgment

The authors are grateful to Prof. R. N. Chatterjee, Head of the Department of Neurosurgery, and to Prof. M. K. Chhetri, Surgeon-Superintendent, S.S.K.M. Hospital, for permission to publish this case.

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6

Peutz-Jeghers Syndrome

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M. N. ANSARI***, M. Z. ANSARI****

Peutz-Jeghers syndrome is characterised by intestinal polyposis and mucocutaneous melainin pigmentation. The condition was first recognised by Peutz, 1921 (cited by McKittrick *et al.*, 1971) who noticed the association between pigmentation and polyposis, although earlier, Hutchinson in 1896 reported pigmentation of lips and mouth in twins, one of whom later died of intussusception but he did not correlate the two. A case of Peutz-Jeghers syndrome is being reported due to its rarity.

CASE REPORT

A. R., 12-year-old Muslim male, was admitted to the casualty department, J. N. Medical College, Aligarh, on 10-7-1973 complaining of intermittent pain in the abdomen, vomiting, constipation and distension of abdomen for the preceding 2 hours. He suffered from attacks of pain in the abdomen off and on for the last 7 months. The attacks of pain lasted for 2-4 hours and subsided with drugs. There was no history of passage of blood per rectum.

Examination—On examination, he was of average build, slightly anaemic and restless. Pulse was 96/minute, B.P. 110/70 mm. Hg; and temperature, 98°.4 F. There were melanin pigmentations on the lips. They were discrete, multiple, brown and black in colour. Pigmentation in other parts of his body was not found. The abdomen was slightly distended and tender in the right iliac fossa. A vague mass was felt extending from the umbilical region to the right iliac fossa. On P.R. examination some faecal matter only was found.

Diagnosis of Peutz-Jeghers syndrome with recurring intussusception was made. He was given analgesics and kept under observation. The pain subsided and the lump disappeared.

On 13-7-1973 he was discharged but reported back on 31-7-1973 with similar complaints as on the last occasion and was relieved of symptoms by conservative treatment.

The members of his family were examined; only the father had brown discrete pigmentation of the buccal mucosa but he was asymptomatic.

Surgery—On 6-8-1973 the abdomen was explored by a right paramedian incision, when multiple polyps were found extending from duodenojejunal junction to the terminal ileum (Fig. 1). Multiple polypectomies were carried out with resection of a portion of ileum containing 2 sessile polyps, and an end-to-end anastomosis was done. In all, 5 polyps were excised, one from duodenojejunal junction, one from jejunum and 3 from ileum. The patient made uneventful recovery and was discharged on 16-8-1973. Since then he has been symptom-free.

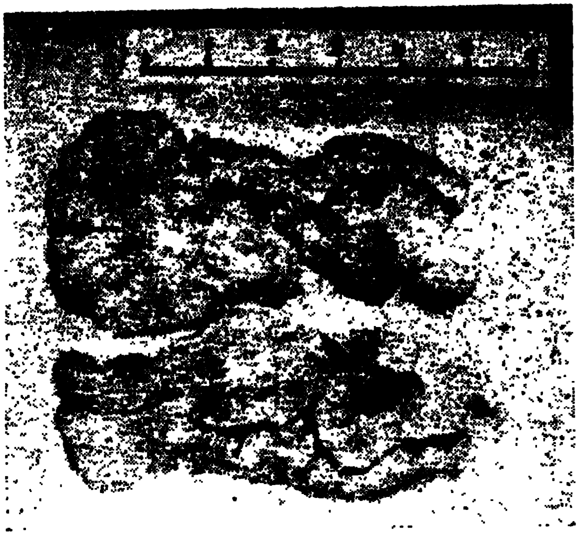

FIG. 1—SHOWING RESECTED LOOP OF INTESTINE WITH BILOBED POLYP

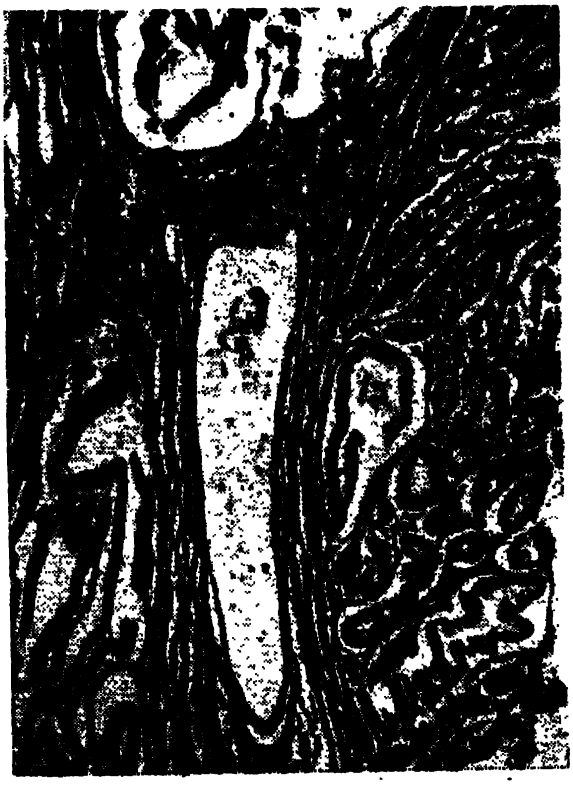

FIG. 2—SHOWING MICROSECTION WITH MASSES OF GLANDS INTERMINGLED WITH BUNDLES OF SMOOTH MUSCLES (HAMARTOMA). AT PLACES THERE IS MARKED HYPERPLASIA AND PLEOMORPHISM BUT NO DEFINITE EVIDENCE OF MALIGNANT CHANGES

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Histology—Microsection showed masses of glands, intermingled with bundles of smooth muscles (hamartoma). The lining cells of the glandular epithelium consisted of mucus secreting cells, paneth cells and argentaffin cells. At places there was marked hyperplasia with multiple layering of the lining cells and pleomorphism though definite evidence of malignant change could not be found (Fig. 2, *H & E ×100*).

DISCUSSION

Jeghers *et al.* (1949) drew attention towards this clinical entity. Since then several cases have been reported in the world literature (Bartholomew *et al.*, 1957; McKittrick *et al., loc. cit.;* Bhargava and Gangwal, 1973). It is inherited as a dominant autosomal gene but sporadic cases may occur by spontaneous mutation. Fifty per cent offsprings of both sexes are likely to suffer from this condition.

Melanin spots are key to diagnosis. They are usually flat, less than 5 mm. in diameter and discrete, bluish-brown to black in colour, oval, circular, or irregular in shape. Oral mucosa and lips are most ocmmonly affected but skin around mouth, nose and hand, feet and abdomen may also be pigmented. Pigmentation may be present at the time of birth but usually appears after several years. The skin pigmentation may fade after the age of 20 years but mucosal pigmentation remains unaltered.

Hamartomatous polyps may be found from gastro-oesophageal junction to the anus but they are most numerous in the jejunum. The size varies from that of a micro-adenoma to more than 5 cm. in diameter. The majority become symptomatic in the first or second decade but cases have been reported from birth (Andrews, 1954) to 75 years of age (Troxel, 1954). One third of the patients present before the age of 10 years, another third before the age of 20 years. Both the sexes are involved equally. Lockhart-Mummery (1967) is of the view that the tendency to form polyp decreases with age but this appears variable. Patients may suffer from haemorrhage and chronic blood loss. Haematemesis is rare; recurrent intussusception is the most common presenting feature. There is no agreement on the incidence of malignancy in the hamartomatous polyps. McKittrick *et al.* (*loc. cit.*) think this to be uncommon while Bailey (1957) estimated 20 per cent overall incidence of malignancy which may be of multicentric origin. Malignant change in the mucocutaneous pigmentation does not occur (McKittrick *et al.; loc. cit.*).

Treatment in symptomatic cases is surgical intervention. Multiple polypectomies are preferred to resection. Vary (1956) recommends serial enterotomies, 2-3 feet apart and inspection of the mucosa with sigmoidoscope and polypectomy.

In asymptomatic cases where diagnosis has been made by endoscopy and barium study, if the polyps involve the small intestine only, elective surgery is not advised. Patients suffering from colonic polyps should be treated as if they are suffering from adenomatous polyps because it is difficult to know whether they are adenomatous polyps or hamartomatous polyps of Peutz-Jeghers syndrome. These patients should be kept under observation for early detection of malignancy by regular endoscopy, barium x-ray and exfoliative cytology.

SUMMARY

Intestinal polyposis and mucocutaneous melanin pigmentation of the lips are key to the diagnosis of Peutz-Jeghers syndrome. Symptomatic cases need surgical intervention, while in asymtomatic cases close observation becomes necessary.

ACKNOWLEDGMENT

We are thankful to the Central Photography Section for their help in preparing the photographs.

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7

Leukaemoid Blood Reaction in Pulmonary Tuberculosis

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Leukaemoid blood reactions have been observed in association with a variety of infections, intoxications and malignant disorders (Wintrobe, 1967). Occasionally, a leukaemoid blood picture has been encountered in association with tuberculosis. Twomey and Leavell (1965) could find only 38 cases of leukaemoid reaction occurring in association with tuberculosis in the literature and they added 3 cases of their own. Another case of leukaemoid reaction in association with tuberculosis was described by Twomey (1969). The leukaemoid reaction in most of these cases was of myeloid type and in 7 instances only, it was lymphocytic. Occasionally monocytic (Gibson, 1946) or neutrophilic leukaemoid reactions (Hilts and Shaw, 1953) have also been described in association with tuberculosis. Most of these patients had miliary tuberculosis, and a few had pulmonary or abdominal tuberculosis. This report describes a patient of advanced bilateral pulmonary tuberculosis who developed leukaemoid reaction as terminal event.

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CASE REPORT

A 48-year-old male patient was admitted to the hospital with the complaints of cough with expectoration, low grade fever and weakness for 6 years. At times he had haemoptysis. During one month prior to admission he felt greater weakness and the amount of sputum had increased, and it became foul smelling. The patient was receiving antituberculous therapy.

Physical examination revealed an emaciated and anaemic patient. Examination of the chest showed signs of cavitation and infiltration in both the lungs. The liver was enlarged 2 cm. below the right subcostal margin; it was smooth, firm and non-tender. A few cervical lymph nodes were palpable, they were discrete, mobile and non-tender. Examination of other organs revealed no abnormality. A clinical diagnosis of advanced bilateral pulmonary tuberculosis was made.

Skiagram of the chest showed cavitary lesions and infiltration in both lungs. Mantoux test was strongly positive.

The results of the haematological investigations performed on the second day after admission revealed: haemoglobin, 10.5 g. per cent; total leucocyte count, 76,000/c.mm.: polymorphs, 45 per cent; lymphocytes, 8 per cent; eosinophils, 2 per cent; 45 per cent of the cells were immature leucocytes, mostly being myelocytes and metamyelocytes. Occasional promyelocytes were also seen; there were no myeloblasts. Arneth count showed a shift to the left. In peripheral blood smear the red blood cells showed a normocytic hypochromic anaemia. Occasional late normoblasts were present; the platelets were plentiful and a few microfilarae were also present. Corrected erythrocyte sedimentation rate was 35 mm. for first hour (Wintrobe) and the packed cell volume was 30 per cent. Reticulocytes were 2 per cent.

Bone marrow—Examination of the sternal marrow revealed that the marrow was hypercellular. Myeloid: erythroid ratio was 40:1. A majority of the non-erythroid cells in the bone marrow were myelocytes and metamyelocytes with 10 per cent myeloblasts. The erythropoiesis was normoblastic and megakaryocytes were normal.

Sputum was positive for acid-fast bacilli; a large number of pus cells was also seen. Culture of the sputum for non-tuberculous organisms showed the growth of *Proteus vulgaris* which was resistant to all the commonly used antibiotics. Culture of the sputum for tuberculous organisms showed the growth of *Mycobacterium tuberculosis*. The drug sensitivity test of these organisms showed them resistant to streptomycin, INH and PAS.

On the fifth day of hospitalisation the patient got repeated attacks of massive haemoptysis and died. The autopsy could not be performed because the relatives of the patient did not agree to it. However, a postmortem liver biopsy could be obtained which showed sinusoidal congestion and mild fatty change. No leucocytic infiltration could be seen in the sinusoids.

DISCUSSION

The findings of the haematological investigations on peripheral blood and bone marrow of this patient are suggestive of a myeloid type of leukaemoid blood reaction. Absence of leucocytic infiltration in the liver sinusoids supports this diagnosis. The development of leukaemoid reaction in association with tuberculosis has chiefly been described in patients of miliary tuberculosis; so far only 3 well documented cases have been reported in the literature where leukaemoid reaction was not associated with miliary tuberculosis, rather there were only pulmonary lesions (Twomey and Leavell, *loc. cit.*). The present case did not show any miliary foci in the liver, hence it appears that the tubercular lesions were confined only to the lungs.

The clinical history of the patient that lately the amount of the sputum had increased and it had become foul smelling suggests that the patient developed a secondary infection in the tuberculous cavities. The isolation of *Proteus vulgaris* on culture supports this view. Since the infection was resistant, the combined virulence of *Mycobacterium tuberculosis* and *Proteus vulgaris* resulted in erosion of the walls of tuberculous cavities and then of the blood vessels which resulted in repeated attacks of massive haemoptysis and death of the patient.

The development of leukaemoid reaction in patients with tuberculosis has been regarded as the terminal event (Wintrobe, *loc. cit.*). The mechanism of induction of leukaemoid reaction in these patients is not known. Leukaemoid reaction has been induced in sensitised calves after injection of tuberculoproteins (Stasney and Feldman, 1938). Thus the leukaemoid reaction in tuberculous patients has been regarded as an *in vivo* manifestation of tuberculoprotein sensitivity (Twomey, *loc. cit.*). The possibility that it could be a response to an exacerbation of the disease or concomitant secondary infection due to poor cellular defensive mechanisms in these patients cannot altogether be ruled out. The occurrence of leukaemoid reaction often in patients with miliary tuberculosis and the association of a resistant infection in this case support this view. The suggestion that the pathogenic mechanism underlying such a response may be immunological and that the development of leukaemoid reaction in a tuberculous patient signifies collapse of his cellular defence mechanism (Wintrobe, *loc. cit.*) are consistent with the above hypothesis.

SUMMARY

Leukaemoid blood reaction in association with tuberculosis has occasionally been encountered. This report describes the occurrence of a myeloid type of leukaemoid reaction as a terminal event in a patient who had advanced bilateral pulmonary tuberculosis. The possible mechanism of induction of leukaemoid reaction in these patients has been discussed.

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CALCUTTA, NOVEMBER 16, 1974

Antibiotics in Obstetric Practice

With the advent of chemotherapeutic agents and antibiotics, maternal and perinatal mortality and morbidity have been considerably reduced all over the world. The Registrar-General's report[1] shows that the maternal death rate in U.K. from puerperal infection fell from 1.4 per 1,000 in 1936 when sulphonamides were first introduced to 0.6 per 1,000 in 1944 when penicillin was becoming available. In the past decade the rate has fluctuated around 0.1 per 1,000 to 0.06 per 1,000 in the last few years. Deaths from sepsis have largely been eliminated from obstetric practice, except those due to criminal abortion where infection is a very important factor in half of the cases. Puerperal sepsis, on the other hand, may not cost a life any more but may cause post-partum disability despite advances in chemotherapy. Septic shock is still the main cause of death, particularly from criminally induced abortion. Although the incidence of maternal deaths from such cause is considerably reduced with liberalisation of abortion law, still admission of such patients with incipient shock or the latter developing soon after hospitalisation is not rare. If this condition is not recognised early and treated adequately with antibiotics, the end result may be disastrous.

There is little information concerning maternal susceptibility to untoward reactions during pregnancy and inherent hazards to the foetus resulting from passage of these drugs across the placental barrier. Most of the antibiotics are transmitted to the foetus from the mother through the placental circulation but it is not definitely known whether its concentration is in therapeutic or toxic level to the foetus. Factors which control placental transfer of antibiotics to the foetus are: 1. Duration of pregnancy: decreased permeability in later months of pregnancy due to fibrinoid material deposited on villi; 2. Route and dose of administration; 3. Protein-binding capacity of antibiotics; and 4. Barrier in absorption of the drug[2]. Anaesthetic agents may be transferred to the foetus through the placental circulation causing foetal anoxia.

Apart from conventional conditions, antibiotics are used in obstetric practice in the following debatable indications, e.g., (i) Premature rupture of membranes both for prophylactic and curative purposes; (ii) Intra-uterine infections; and (iii) Prematurity—mainly for prophylaxis.

The justification of use of antibiotics in premature rupture of membranes as a prophylactic measure is still disputed. There are many debatable factors on this issue, such as type, dosage and route of administration of the drug, nature of vaginal pathogenic organisms and their mutation, effect on maternal and perinatal mortality and morbidity. If antibiotic is used as a routine[3] after premature rupture of membranes and before birth of the baby, particularly at or near about term pregnancy, it may be unnecessary. If, on the other hand, its administration is delayed by more than 24 hours, the infection following premature rupture of membranes may result in fulminating septicaemia affecting both mother and foetus.

Charles[4] advocates antibiotic therapy only 24 hours after premature rupture of membranes and continuing the same after delivery both to mother and baby provided the organisms are isolated by culture and specific antibiotic has been selected.

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Lebherz *et al.*[5], however, showed in an extensive study of 2,934 cases of premature rupture of membranes out of 25,427 deliveries (11.5 per cent) that by routine administration of antibiotics in such cases the foetal salvage rate would be only 0.68 per cent at the cost of sensitising 5 to 10 per cent of subjects thus treated. Maternal morbidity, however, can definitely be reduced by this therapy. Prophylactic use of antibiotics in premature babies is another debatable issue. According to Sutherland and Mohlman[6] prophylactic antibiotic therapy has little to offer good obstetric care.

Acute maternal infections in pregnancy and labour with grave threat of bacterial shock and neonatal infections should, however, be treated vigorously by antibiotics and chemotherapeutic agents.

While administering antibiotics in the pregnant women one should carefully weigh the toxic manifestations that may be reflected on the foetus

Penicillin : Protein—Penicillin reaction in the mother[7] may have serious side-effects in the foetus releasing toxic bilirubin and thus increasing risk of kernicterus. Maternal administration of penicillin may also cause nephropathy in the premature newborn babies[8] as nephrons are not fully formed and functioning until after 36 weeks of gestation. Ampicillin, however, is comparatively non-toxic to both mother and newborn baby[9].

Chloramphenicol : This antibiotic should be avoided in obstetric patients as far as possible unless there is an overwhelming infection for which this drug should be of primary choice. Premature babies may suffer from "gray baby syndrome" characterised by poor feeding pattern, abdominal distension, shallow respiration, cyanotic attacks ultimately resulting in death of the baby within 48 hours.

Tetracyclines : Even maternal death may occur if it is used in the 3rd trimester. It may cause jaundice, hepatic coma, acute pancreatitis, azotaemia, particularly in cases of pyelonephritis[10]. Foetal defects that have been recorded following use of tetracyclines in pregnant women are defective development of bones and teeth and pigmentation of teeth continuing up to 2 years of childhood[11].

Streptomycin and I.N.H. : The anti-microbial agents used for the treatment of tuberculosis in pregnancy are also not safe as regards toxic effects on the unborn child. Streptomycin may damage the cochlear-vestibular apparatus of the newborn. Conway and Bert[12] reported that 8 of 17 children ranging in age from 6 to 13 years under such circumstances had minor defects as regards eighth cranial nerve function. Furthermore, there was no relation between the cranial nerve difficulty and total dose of the drug used or the time at which it was administered during gestation.

Toxic effects from I.N.H. to children born to women who received this drug during pregnancy should also be considered. Monnel *et al.*[13] comment that serious mental retardation and even convulsion and myoclonia can occur in the infant. These complications can be attributed to metabolic products of this compound.

Kanamycin : Kanamycin is found to be a useful drug in obstetric infections but sometimes may produce neurotoxicity and nephrotoxicity in adults. It may exhibit ototoxicity in children as the drug traverses the placental barrier and results in substantial concentration in foetal serum after a single dose has been given to a pregnant woman at term. Very little information is at present available on gentamycin and cephoran in obstetric practice. In spite of all the toxic effects and complications of the antibiotics mentioned above, acute infections in pregnancy and labour associated with severe pyrexia and risk of gram-negative septic shock should be treated vigorously by chemotherapeutic and antibiotic agents. It is only awareness on the part of the physician of the risk of infection on one hand, and the potential hazards of iatrogenic disease on the other, that a balanced approach to obstetric infections can evolve.

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Maternity hospital infection : Septic abortion and puerperal sepsis or child-bed fever used to be a principal cause of maternal mortality but since 1936 there has been a steady fall in maternal deaths from infection, partly because of improved obstetric practice but more closely linked with the new chemotherapy.

The better control of post-partum sepsis brought into more prominence infections occurring after abortions, as a large proportion of which is self-induced or criminally interfered. In the past decade, emphasis as regards infections in the maternity hospital has shifted from streptococcus to staphylococcus and from mother to child.

With the virtual elimination of the haemolytic streptococcus as the cause of serious infection owing to a probable diminution in its virulence, combined with its sensitivity to penicillin and sulphonamides the main danger now is from the staphylococcus owing to the increasing incidence of resistant strains.

With the introduction of the antibiotics it was anticipated that serious infection would become a thing of the past. Unfortunately this has not proved to be true owing to the ability of the organisms to produce strains resistant to the antibiotics.

It has been established beyond doubt that the widespread use of antibiotics leads to the emergence of resistant strains. Laboratory tests show that organisms originally sensitive have now become resistant. The introduction of penicillin treatment resulted in the sensitive strains being practically eliminated whilst the resistant strains were encouraged to flourish. The result is that the incidence of carriers of resistant strains of staphylococci among hospital nursing staff has now risen to 70 to 80 per cent; these resistant strains are also harboured in dust, bedding, skin, umbilical cord and mouth of the newborn baby. Recently the emphasis in maternity hospital infection has switched from mother to child. Sometimes outbreaks of staphylococcal infection, affecting a high proportion of the babies lead to closure of the hospital. Since the skin, the umbilicus and the nose of the newborn baby become colonised early and often heavily with staphylococci, this should be prevented by prophylactic use of effective antibacterial drugs, which could be used either systemically or locally. Erythromycin has been used to protect infants in the face of an epidemic spread and this form of chemoprophylaxis has apparently been effective. But systemic use of this drug in infants as prophylactic measure may incur the danger of encouraging the emergence of drug-resistant strains. On the other hand, it seems that thorough treatment of the baby's skin with an antiseptic detergent like phisohex is likely to be the most effective method of controlling the spead of staphylococci in the maternity hospital. This procedure should, however, be preceded by thorough disinfection of the environment and the bedding.

In view of the above discussion evaluation of use of antibiotics in this country in obstetric practice has become overdue and data should be collected from different centres regarding bacterial flora and the drugs actually used so that proper precautions may be taken to avoid the potential hazards of iatrogenic disease.

N. N. Roy Chowdhury

CURRENT MEDICAL LITERATURE

Ascorbic Acid, Folic Acid Inter-Relationship in Geriatric Subjects

LOH, H. S. AND DEMPSEY, P. M. (*J. Irish Med. Ass.*, **67**: 247, 1974) from the Department of Pharmacology, University of Dublin, Trinity College, Dublin 2, comment:

Dietary ascorbic acid intake, leucocyte and plasma ascorbic acid concentrations, serum folic acid concentrations and haemoglobin concentrations were estimated in healthy subjects from a geriatric hospital in Dublin. The ascorbic acid, serum folic acid and haemoglobin concentrations were within normal ranges for their age group. There was no sex difference in any of the parameters when measured alone. There was no relationship between leucocyte, ascorbic acid and haemoglobin concentrations and serum folic acid concentrations. The serum folic acid was inversely related to the dietary ascorbic acid intake and the plasma ascorbic acid concentration. There was a difference in the metabolism of ascorbic acid between male and female subjects when the dietary and plasma ascorbic acid concentrations were related to the serum folic acid concentration. The relationship between folic acid and ascorbic acid in the causation of macrocytic anaemia of scurvy was discussed.

Rifampin in Newly Detected Pulmonary Tuberculosis

JESSAMINE, A. G., GALE, G. L. AND EIDUS, L. (*Canadian Med. Ass. J.*, **110**: 1033, 1974) from Ottawa Region, Tuberculosis Prevention Service, Ontario Ministry of Health, from Toronto Hospital, Weston, Ontario and from Bureau of Bacteriological Diseases, Laboratory Centre for Disease Control, Health and Welfare Canada, state:

A comparison was made of the therapeutic efficiency and tolerance of rifampin-based regimens and that of the standard triple-drug combination in the treatment of 92 newly diagnosed cases of pulmonary tuberculosis. The 3 drug regimens investigated were; A, rifampin-INH; B, rifampin-INH-streptomycin; and C, INH-PAS-streptomycin. Therapeutic progress was measured in terms of sputum conversion on culture and microscopy. The rifampin combinations produced a somewhat earlier sputum conversion. With regimens containing this potent antibiotic the phenomenon of microscopically-positive but culture-negative specimens was more frequently observed. The tolerance exhibited to the rifampin regimens was far greater than that to the conventional triple-drug combination. Nevertheless, periodic laboratory examinations are essential during rifampin therapy for safe utilisation of the drug. An incidental finding of this study was an increase in primary resistance to streptomycin, particularly among recent immigrants to Canada.

Electrical Alternans

KUMAR, S. AND DAYHEM, M. K. (*Illinois Med. J.*, **145**: 500, 1974) from Chicago write:

A 42-year-old man with chronic renal failure, maintained on adequate dialysis, was admitted with chest pain. He was found to have pericarditis with effusion. After successful dialysis, he experienced cardiac tamponade. Electric alternans of the QRS complexes was found to be a useful sign for diagnosing and following the course of tamponade. After partial aspiration, this sign disappeared but returned with critical reaccumulation of fluid. The diagnosis of pericardial effusion and tamponade in uraemic patients can be difficult because of frequent fluid retention and heart failure. It is suggested that the presence of electric alternans should raise the possibility of tamponade in these circumstances.

Role of the Carotid Bodies in Breath-Holding

DAVIDSON, J. T., WHIPP, B. J., WASSERMAN, K., KOYAL, S. N. AND LUGLIANI, R. (*New Eng. J. Med.*, **290**: 819, 1974) from the departments of Medicine and Physiology, Harbor General Hospital, Torrance, and UCLA School of Medicine, Los Angeles, California, and the Department of Anesthesiology, Hadassah University, Jerusalem, Israel, state:

To determine the role of the carotid bodies in the sensation of breathlessness during breath-holding, studies were performed in 6 normal subjects and in 5 patients with asymptomatic asthma who had had both carotid bodies resected. Breath-holding followed single inspirations of 100, 50, 21 and 12 per cent oxygen and after breathing of 12 per cent oxygen for 1 minute. In the normal subjects, breath-holding time and alveolar carbon dioxide tension at the breaking point progressively decreased as alveolar oxygen tension decreased. In contrast, there was no change in alveolar carbon dioxide tension or breath-holding time until alveolar oxygen tension was reduced below 50 mm. Hg in this patient group. Breath-holding time was twice that for the normal subjects at 50 mm. Hg. These studies indicate that the carotid bodies are active chemoreceptors for oxygen through levels greater than 200 mm. Hg, that interaction of carbon dioxide and oxygen on respiratory control occurs at the level of the carotid bodies in man, and that the carotid bodies contribute to the sensation of breathlessness that results in the break from breath-holding.

Zollinger-Ellison Syndrome

PLAMISANO, D. J. AND BROWN, J. E. (*J. Louisiana Med. Soc.*, **126**: 149, 1974) from New Orleans, Louisiana write:

"Early diagnosis is possible by considering every patient with peptic ulceration as a potential ZE syndrome. The available diagnostic tests are discussed, and a patient with a microadenoma and islet hyperplasia is presented demonstrating early diagnosis utilising gastric analysis and pancreatic tail biopsy."

The Zollinger-Ellison syndrome of gastric hypersecretion and recurrent peptic ulceration secondary to gastrin secreting tumours usually of the pancreas is a well recognised entity. Unfortunately, many of the cases are found late after inadequate attempts to control the gastric hypersecretion. Early diagnosis is possible by considering every patient with peptic ulceration as a potential ZE syndrome. The available diagnostic tests are discussed and a patient with a microadenoma and islet cell hyperplasia is presented demonstrating early diagnosis utilising gastric analysis and pancreatic tail biopsy.

Prazosin: Preliminary Report and Comparative Studies with other Antihypertensive Agents

STOKES, G. S. AND WEBER, M. A. (*Brit. Med. J.*, **2**: 298, 1974) from Cardio-Renal Unit, Medical Research

Department, and Cardio-vascular Clinic, Sydney Hospital, Sydney, Australia, write :

In a group of 14 hypertensive patients a 10-week course of treatment with prazosin 3-7.5 mg./day produced a significant reduction in mean blood pressure without serious side effects. The fall in diastolic pressure exceeded the response to a placebo by 10 mm. Hg or more in 9 patients. The average decrease in diastolic pressure was similar to that produced by methyldopa, 750 mg./day or propranolol, 120-160 mg./day, but the fall in systolic pressure was comparatively smaller, consistent with reported experimental work showing that the drug causes vasodilatation. The hypotensive effect of prazosin, 1.5-3 mg./day combined with propranolol was significantly greater than that of propranolol alone and resulted in good control of blood pressure.

Blood Dyscrasias with Long-term Phenylbutazone therapy

BOWMAN, W. D. (*Rocky Mountain Med. J.*, **71**: 274, 1974) from the Department of Internal Medicine, Billings Clinic, Billings, Montana, observes :

Phenylbutazone, a drug related to aminopyrine and antipyrine, has been used in the treatment of rheumatic conditions since 1949. It has long been recognised as an occasional cause of aplastic anaemia, thrombocytopenia, and agranulocytosis. Other side effects include fluid retention with occasional cardiac decompensation and pulmonary oedema, nausea, vomiting, diarrhoea, skin rashes, peptic ulceration and hepatitis.

During the past 14 years, a growing body of reports suggest that phenylbutazone may be associated with acute leukaemia.

The investigators concluded, however, that it was not possible to decide whether the drug is leukaemogenic from this particular study, since a good control population was unobtainable.

The simple observation that a given disease was preceded by the chronic use of a certain drug is certainly not proof of a cause and effect relationship. It is particularly important to be sure that the drug was not taken for relief of symptoms caused by the insidious early development of the disease in question. Nevertheless, 2 patients have been presented with unusual blood dyscrasias, both of whom had taken phenylbutazone on a chronic basis. For many years I have questioned patients with blood dyscrasias regarding past drug use and I have not been impressed with the chronic use of any drugs, except phenylbutazone, including aspirin.

Although the evidence is inconclusive, there is definite suspicion that phenylbutazone is a drug of such potential toxicity that it should not be given over a period of more than a few weeks except in conditions (such as rhemuatoid spondylitis) where the indications are clear, the need is definite, and adequate substitutes are lacking.

Hypnosis in Psychiatry

SODOMSKY, M. E. (*J. Kansas Med. Soc.*, **75**: 195, 1974) from 1919 West 10th St., Topeka, Kansas 66604, writes :

Hypnosis has been used by physicians for many years. It was used much less when Sigmund Freud sopke out against it as far as utilising it for psychotherapy. Also, hypnosis had gained a bad reputation because of its use by entertainers, who employed it in such a way as to scare the general public. In recent years, however, hypnosis is once again being used more frequently and the author would like to report on its use in the private psychiatric practice.

Hypnosis was utilised as a therapeutic tool for the relief of anxiety and for the control of smoking and weight reduction. It was also used as an aid for psychotherapy, but this report did not include a discussion of this particular use. The author also used hypnosis for treatment of analgesia, but not to the extent that the results obtained could be reported.

In all of the methods used, it was found that the induction period need not last more than 10 to 15 minutes. This time can be shortened as both the patient and therapist become more experienced in the particular hypnotic induction employed. After administering the hypnotic induction for 1, 2, or 3 sessions, the patient is taught to utilise self-hypnosis. The patient is asked to "carry the ball". This saves both time and money for all parties involved.

Hypnosis is now being used more frequently. In this report, hypnosis was found to be an effective tool in the treatment of anxiety, and particularly for the tension states that developed in spastic colitis. It was also found to be helpful in weight reduction and assisting a person to stop smoking. It is a method which does not require more than 30 minutes of the physician's time per hypnotic session and, by teaching self-hypnosis, 2 or 3 sessions might be sufficient, allowing the patient to "carry the ball" afterwards.

Blood Preservation Solutions

DAWSON, R. B., CAMP. COL. F. R. AND CONTE, COL. N. F. (*Milit. Med.*, **139**: 300, 1974)from the US Army Medical Research Laboratory, Fort Knox, Ky. 40121, comment :

The major purpose of transfusing whole blood or red cells is to provide the recipient with a means of delivering oxygen to the tissues. In human red cell metabolism, oxygen transport by haemoglobin requires 2,3-diphosphoglycerate (2,3-DPG) to perform this function normally. In previous work, it was demonstrated that the recently introduced blood preservative citrate-phosphate-dextrose (CPD), because of its higher pH, maintains 2,3-DPG—and thus haemoglobin function—better than the older preservative, acid-citrate-dextrose (ACD). The present study evaluates the effect of raising the pH of an ACD solution from approximately 5.0, by 0.2 increments, to a pH 6.0. It will also include pH 5.6, the approximate pH of CPD.

It appears that the best preservative for maintaining haemoglobin function, and at the same time red cell viability, would be the one at pH 5.6, in which 2,3-DPG is maintained at normal values during the first week of storage and with only minimal effect on ATP concentrations. Here, the ATP concentration at 14 days is very similar to the concentrations in the other lower pH preservatives. It appears that maintaining ATP concentrations for prolonged viability or storage will require the use of small amounts of adenine. This is especially true now that it is necessary to raise the pH of preservatives to maintain 2,3-DPG, as this lowers the ATP concentration.

CURRENT TOPIC

Sports Medicine—Modern Concepts

ALOKE GHOSH[*]

The 20th World Congress on Sports Medicine, held in Melbourne on February 4-9, 1974 had an interesting theme—"Factors Affecting Performance in Sport and Recreation". The theme allowed individual contributors to the scientific sessions the opportunity of discussing why people engage in recreational and sporting pursuits; what factors determine their level of performance, and whether in any country, affluent or otherwise, there is benefit to a community whose members regularly participate in physical activities that help to promote and preserve their health, happiness, and capacity to perform daily work or leisure activities with zest and satisfaction.

A brief summary of the symposia topics dealt with by the principal speakers would throw some light on some of the modern scientific concepts of sports medicine.

1. PSYCHOLOGICAL ASPECTS OF PERFORMANCE

Participating in the symposium on this topic Prof. A. T. Welford from the Department of Psychology, University of Adelaide and an acknowledged authority on the acquisition of the perceptual motor skills, explained his concept as follows. When the execution of a sporting activity requires a high level of skill the task to be performed must be perceived and its nature properly judged. Then it should be executed by co-ordinating the eye, arm, hand and body so that the required action takes place. The psychological aspects of performance, therefore, relate to such things as grooving a golf swing or serving in tennis and the judgment of speed and distance leading to proper control of the racing motor car or the piloting of an aircraft.

2. EXERCISE IN CARDIOVASCULAR DISEASE PREVENTION AND REHABILITATION

The topic was in tune with the concern of the community over the increasing loss of life from heart diseases as also the disability suffered by those who survive an attack of coronary occlusion and the considerable interest generated, on the other hand, by the concept that lack of physical activity in the modern, industrialised, affluent society was a contributing factor to the incidence of coronary disease.

Endorsing the suggestion that heart disease might be prevented by persuading the community to engage in regular physical exercise suitable to different age groups, Prof. H. K. Hellerstein from Western Reserve University, Cleveland, Ohio, discussed the ways in which exercise might be used for the purpose and the dosage of such exercise.

He stressed the need for a greater realisation of the role of exercise, if jogging and other forms of exercise being undertaken by those in the community, who are vulnerable to heart diseases are to play a worthwhile preventive and rehabilitative role.

3. BIOMECHANICS IN RELATION TO SPORT

Prof. Carl Hirsch from Stockholm and Prof. Ehrling Asmussen from Copenhagen discussed questions as to how the collagenous or connective tissues react to mechanical forces. It is obvious, they pointed out, that the performance of a physical movement such as running does not depend wholly on the work done by muscles. The working muscles connect tendons and ligaments that form supporting structures around joints and the movement of these structures plus their reaction to mechanical forces is an integral part of the achievement of athletic efficiency. It is, therefore, necessary to investigate how these connective tissue structures react to stress and contribute to performance efficiency.

4. CARDIORESPIRATORY FUNCTION IN RELATION TO PERFORMANCE

In this symposium Prof. Astrand from Stockholm posed the question as to whether the upper levels of human performance were limited by overtaxing the oxygen transport system or whether the limitation was due to the metabolic capacity of intracellular structures such as the mitochondria, the amount of energy substrate and the enzyme levels occurring in working muscle cells. For muscular work to be done, there must be an uptake of oxygen and transport of this oxygen in the circulating blood by the pumping action of the heart to the point of delivery which is the working part of body muscles.

It is this need that led Prof. Astrand to develop the concept of aerobic power, which is a measure of the maximum oxygen uptake test devised by him and now widely used in all parts of the world as an aid to the assessment of fitness in athletes, workers and executives. While the results of this test have been invaluable, it is now necessary to explore what happens at the sites of oxygen delivery.

5. NUTRITION AND METABOLISM IN RELATION TO COMPETITIVE PERFORMANCE

Dr. Hultman and Prof. Saltin of Stockholm discussed the questions of nutrition and metabolism in relation to performance. Firstly, it was discusssed whether the question of diet could be manipulated as an aid to preparation for competition. For many years the traditional pre-game meal has been steak, but the question has now arisen as to whether changing the diet during the last week before competition could produce stores of energy-liberating materials such as glycogen that would greatly exceed the amount of the same present in the person who has taken the more traditional type of diet.

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[*] M.B.B.S., President, Indian Association of Sports Medicine, Calcutta

An important aspect taken up for discussion was the reason why the endurance athlete who runs 20 miles a day in training, or the swimmer who covers 35 miles a week, develops "sports anaemia"—a condition in which the amount of haemoglobin and the number of circulating red cells are reduced. In the view of the participants of the discussion the condition indicates a point where the oxygen transport system is found to become deficient in relation to the needs for high-level performance. They held that the questions that a sports physician may have to tackle in this connection should relate to whether the "sports anaemia" is due to an inadequate protein intake or to other factors.

Another problem in this area that came up for discussion was how much body weight an athlete may lose before his performance is impaired—a question highly relevant to performers such as jockeys, weight lifters, wrestlers, boxers and rowers. It was pointed out that with the exception of the jockey, the other athletes mentioned had the opportunity of restoring their body water after an official weigh-in and before competition took place. The need was, therefore, felt to establish the limits of rapid weight reduction and identify the extent and nature of any impairment in performance that occurred when body water was reduced.

6. EFFECTS OF ALTITUDE ON ENDURANCE PERFORMANCE

Before the Mexico City Olympic Games there was considerable concern as to the effects the high altitude of the venue of the games would have on performance in general and endurance performance in particular. Though investigations in various aspects of this problem have been undertaken and considerable information is now available, a co-ordinated effort has still to be made to bring all the results together so as to formulate a consensus of opinion on just how and when altitude effects are likely to be significant for endurance performance. A comprehensive discussion on all aspects of this problem were made by Prof. Astrand, Dr. Grover of Denver, Colorado, and Dr. Hartley of Harvard. The discussion gave rise to the hope that the International Federation of Sports Medicine will be able to develop in the future sound medical views on problems relating to performance at altitude and recommend effective guidelines for the international bodies organising sporting events.

About 100 papers were presented at this World Congress from various other specialities, e.g., general surgery, orthopaedic surgery, radiology, physical medicine, rehabilitation, cardiology, physiology, psychiatry, neurology and ophthalmology.

The idea that emerged from the above deliberations about sports medicine was that it was an inter-disciplinary study in which almost any aspect of the application of medical science to recreational and sporting problems was relevant.

The International Federation of Sports Medicine (F.I.M.S.) with affiliation from about 50 countries of the world also met in general Assembly at Melbourne in February, 1974 and forwarded the following recommendations to its member countries (*vide Deliberations of the General Assembly of the International Federation of Sports Medicine, Melbourne, 7th February, 1974*):

1. Observing that the age of participants in high performance competition (particularly in some sports) is becoming progressively lower, the F.I.M.S. calls the attention of all sports organisations to the potential dangers of sustained extreme efforts to the health, both physical and psychological, of pre-adolescent children who are not yet sufficiently mature to sustain them and calls upon sports physicians throughout the world to participate in the study of the effects of intense competition in sport on pre-adolescent children.

2. The F.I.M.S. draws attention to the role of sport and physical recreation in the prevention, amelioration and rehabilitation of cardiovascular, metabolic and degenerative disorders and to the particular importance of sport in counteracting the harmful effects of the sedentary way of life imposed by modern civilisation.

3. The F.I.M.S. stresses the importance of the study of biomechanics as the foundation on which may be developed not only better physical performance but also avoidance of injuries. The Federation, therefore, seeks to encourage the study and teaching of biomechanics in all aspects of sports medicine.

4. The F.I.M.S. has considered all the available evidence relating to tests for the presence of anabolic steroids, which are used by some sportsmen in attempts to increase body mass and strength, and concludes that at the present time there is no practical effective method available for the detection and, therefore, control of these drugs. Further developments and technical refinements must be awaited before a ban on the use of anabolic steroids can be effectively enforced.

5. The programme of the Scientific Commission of the Federation during the next few years will be to study the role of sport in the prevention and treatment of disease and will involve retrospective multicentre studies of ex-Olympic athletes and of physical educationists together with a long-term prospective study of students of physical education with a control group.

6. In its work the Scientific Commission will involve research workers from all five continents and will be co-operating actively with the World Health Organisation and U.N.E.S.C.O.

The above recommendations of the F.I.M.S. should be taken due cognisance of by those who are interested in sports medicine and in the improvement of the performance of the athletes of our country. The Indian Association of Sports Medicine will have to initiate research in the field and in the laboratory keeping in mind that human performances depend on various factors, e.g., genetic, environmental, nutritional, physiological, psychological, and socio-economic and, above all, on the training facilities available to our performers, which by all measures are inadequate at the present moment. It is hoped that these issues will be considered by the IASM in all seriousness in its forthcoming Madras Session.

NOTES AND NEWS

Plastic Surgery Unit for Every Medical College

Inaugurating the 3-day summer conference of the Association of Plastic Surgeons of India at Delhi, the Union Minister for Health and Family Planning, Dr. Karan Singh said that every medical college should have a plastic surgery unit. Paying tribute to the high degree of skill and expertise acquired by Indian surgeons, he urged them to continue acquiring specialised knowledge.

In his presidential address, Dr. J. L. Gupta said that when the association was formed in 1957 there were just 5 plastic surgeons in India. Today, there were a little more than 68 fully-trained surgeons and about 40 associate members, he said. He pointed out that even granting that one plastic surgeon was required for one million people, the present number of plastic surgeons was admittedly very small and even this number was not being properly utilised, while nearly 10,000 people were dying of burns in India every year.

Diploma Course in Marine Medicine

Bombay University has been considering a suggestion shooted by INHS Asvini, to start a one-year post-M.B.B.S. diploma course in marine medicine, according to Rear Admiral D. R. F. Pinto, Director of Medical Sciences (Navy).

Admiral Pinto recently told newsmen at Bombay that not only the naval activities but also off-shore drilling demanded the development of marine medicine. He disclosed that a marine medical survey was being conducted by the naval doctors at Visakhapatnam, Cochin and Bombay to determine the incidence of radiological lesions among civilian and naval divers.

The survey would also be conducted among the pearl fishermen at Tuticorin. INHS Asvini authorities were also engaged in developing a vaccine against infectious hepatitis, Admiral Pinto said.

New Clue in Search for Leukaemia Cure

Nobel prize-winning scientist Dr. Charles B. Huggins of the University of Chicago recently claimed that leukaemia induced in the laboratory in male rats disappeared in 40 per cent of the cases after the pituitary gland, which produces hormones, had been removed.

Dr. Huggins, who won the Nobel prize in physiology and medicine in 1966 for his work on hormones in the treatment of cancer of the prostate, said that as a result of his more recent study, leukaemia research would change considerably.

Meeting and Workshop on Nutrition in Diabetes at Madras

Third annual scientific meeting of the Research Society for Study of Diabetes in India will be held at Madras on January 17-18, 1975, under the chairmanship of Prof. Sam G. Moses. The programme includes guest lectures and panel discussions besides free communications. The main theme of the meeting is 'Diabetic Complications Relevant to Developing Nations.' The last date for receipt of abstracts is the *30th November, 1974.* There is no registration fee. All communications may be addresed to: Dr. Bhaskar Rao, Asst. Prof. of Medicine, Metabolic Unit, Department of Medicine, Maulana Azad Medical College, New Delhi 110001.

First Dr. K. C. Chaudhuri Memorial Oration.

The Dr. K. C. Chaudhuri Memorial Committee, which has been formed to commemorate the distinguished services to the nation of late Dr. Chaudhuri, founder of the Institute of Child Health, Calcutta and a pioneer paediatrician of India, has invited Dr. David Morley of the Institute of Child Health, University of London to deliver the first annual Dr. K. C. Chaudhuri Memorial Oration. Dr. Morley will speak on New Approaches to the Delivery of Child Care.

Doctor in the News

Dr. A. B. Mukerjee, Professor and Head of the Department of Medicine, Calcutta National Medical College, and Hony. Editor, J.I.M.A. was invited as a visiting professor by Oklahoma State University, U.S.A. and University of Alberta, Edmonton, Canada, in early October this year. Prof. Mukerjee delivered lectures on: (1) Problems of Atherosclerosis in a developing country. (2) Observations on intensive coronary care with special reference to prognostic assessment. (3) Hypertension in the young. (4) Renal tuberculosis and hypertension. He was shown round intensive care units in both University hospitals and had a preliminary discussion with the Board of the University of Alberta, Canada, for an exchange programme in Nephrology with particular stress on renal transplantation and haemodialysis.

Several professors of the University including Prof. V. J. Sproule, acting Chairman of the Department of Medicine, and Dr. J. B. Dossetor, Chief of Renal Service, expressed their desire to participate in the Scientific programme of the 50th All India Medical Conference to be held in the last week of December, 1974.

REVIEWS

Bioavailability of Drugs : Principles and Problems : Wld. Hlth. Org. Techn. Rep. Ser. No. 536, 1974, Geneva, World Health Organisation, 16 cm. × 24 cm., pp. 17, S. Fr. 6.

This book is an outcome of group discussion outlining the basic principles that should be applied to the testing of drugs for bioavailability.

The primary purpose of bioavailability determination is to find out how well a particular product is absorbed in the human system. The point of maintaining ethical standards in performing bioavailability tests in human beings either ill or healthy has been stressed. Attention has also been drawn to various factors influencing bioavailability.

Details of methods of testing and advantages of correlation of bioavailability data in man with data from other sources (animal studies, *in vitro* tests) have been outlined.

In section 6 while discussing the specifications of bioavailability it has been mentioned that determination of relative bioavailability is perhaps more useful.

In section 10, the conclusion and recommendation of the group, it has been clearly stated that at present there is no satisfactory method of predicting bioavailability in man from *in vitro* tests and animal studies.

In view of the present importance of bioavailability data of various formulation and their therapeutic nonavailability in some, the book will solve many of the questions raised regarding bioavailability.

L. K. Ganguli

Understanding Urology, Vol. 5 in Perspective Medicine Series: Ed., Leo van der Reis; Vol. Ed. by Stephen N. Rous, 1973, S. Karger, Basel, Munchen, Paris, London, New York, Sydney, 19.5 cm. × 13.5 cm., pp. viii+120, S. Fr. 19, US $ 5.90, DM 17.50, £2.40

A very well written book. The basic principles of urology have been explained in lucid language understandable even to nonphysicians for whom the book is primarily intended. Its purpose, however, would serve a greater cross section of medical world. It would be a good book for the medical students, interns as well as for the nurses. It may help to establish the basic foundations and serve to fill some of the lacunae in the knowledge on the subject in aspiring urologists.

Eken Ghosh

Current Psychiatric Therapies, Vol. 13, 1973: -Ed., Jules H. Masserman, Grune & Stratton, New York and London, 23.5 cm. × 16 cm., pp. xiii+238, $15.75.

This book consists of 9 parts with an introduction by Perry C. Talkington. on the critical issues in psychiatry which deals with the reassessment of America's mental health care.

The book reviews the stereotyped therapies of the past and most modern methods of therapies now used in the treatment of behavioural disorders of children, adolescents and adults. Specially interesting is the chapter on sexual disorders and the therapeutic processes adopted in treating such disorders. Advances made in familial, group, and institutional therapies have been elaborated with special reference to Morita psychotherapy which goes after the name of Professor Shoma Morita of Jikei University in Tokyo.

This book will be helpful specially to postgraduates and research students of psychiatry.

Gobinda Sen

OBITUARIES

Dr. Dwijapada Mukherjee

Dr. Dwijapada Mukherjee, President of the Ukhra Branch of I.M.A. in West Bengal, passed away on 17-12-1973. Born in 1905, Dr. Mukherjee took his M.B. degree in 1931 from R. C. Kar Medical College, Calcutta. After serving several organisations, he started private practice at Asansol and shortly became popular as a practitioner. He was a family physician to the Hetampur Raj family of Birbhum district from 1946 to 1952. In later life, Dr. Mukherjee was closely associated with the Asansol Branch of I.M.A. and used to take keen interest in its activities. A man with a religious bend of mind, he was connected with several religious institutions in Burdwan district. He is survived by his wife, 5 sons and 3 daughters.

Dr. (Major) Pabitra Kumar Basu

Dr. Pabitra Kumar Basu, a former Vice-President of the Dhakuria Branch of I.M.A., passed away on 8-1-1974 following a heart attack.

Born on 1-8-1903, Dr. Basu passed both the Matriculation and I.Sc. examinations in the first division and graduated in medicine from Carmichael Medical College (now R. G. Kar Medical College), Calcutta, in 1929. After a period of private practice at Rangoon, the capital of Burma, and at Chittagong and Dacca towns in undivided Bengal, he joined the Indian Medical Service as a Commissioned Officer in 1942 and served in the Middle East from 1943 to 1946. Graded first as a specialist in otorhinolaryngology and later as a specialist in otology, he served in various military hospitals and was included in the Indian Army Goodwill Mission to U. K. and other continental countries. On retirement from the army service he joined the Bankura Sammelani Medical College as Head of the ENT Department. In 1965 he retired from the college and set up private practice at Dhakuria, Calcutta.

Dr. Basu used to take active part in the work of Dhakuria Branch of I.M.A. and was very popular with the people of the adjoining localities. He leaves behind his wife, three sons, and two daughters.

Dr. T. P. Ray

Dr. Tara Pada Ray, one of the founder members of Purulia Branch of I.M.A died on 24-6-1974 following a brief spell of illness.

Born in 1904, Dr. Ray received his early education in Tilur Kripamoyee High School in Bankura District. He qualified as an L.M.F. in 192 from Temple Medical School, Patna, and set up private practice at Purulia.

A popular physician, Dr. Ray was connected with several social organisations of Purulia. He was Vice-Chairman of the Purulia Municipality and the former Manbhum District Board for a long period. He was also appointed Deputy Minister in the Department of Irrigation and Waterways, Government of West Bengal.

Dr. Ray contributed much to the development of the I.M.A. organisation at Purulia through his untiring efforts. He was elected Vice-President of the branch for several terms.

Your Health

You would certainly be very glad to learn that the monthly health journal YOUR HEALTH, published by your Association has been well appreciated throughout the world. Its twentythird year of publication commenced from January 1974.

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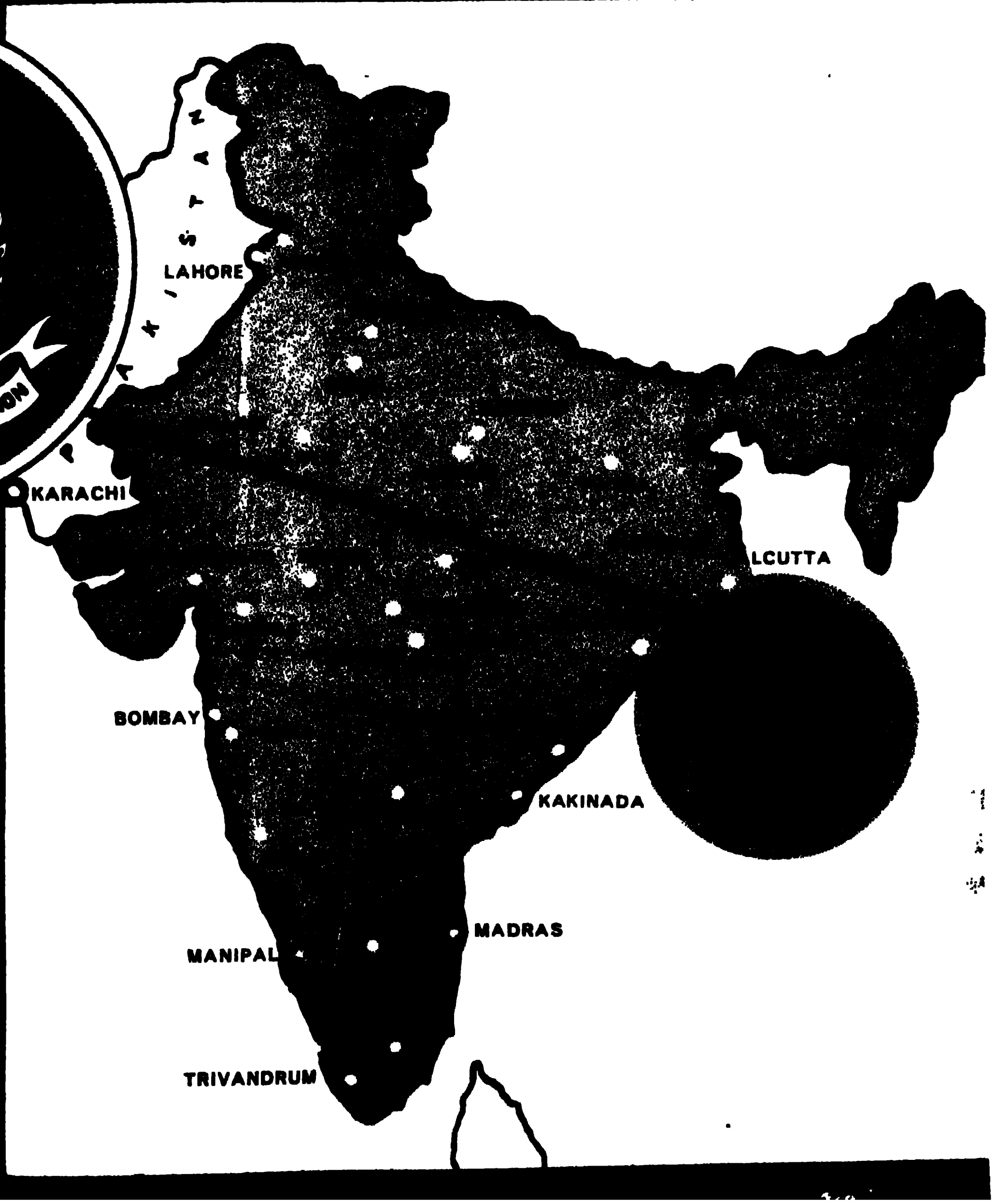

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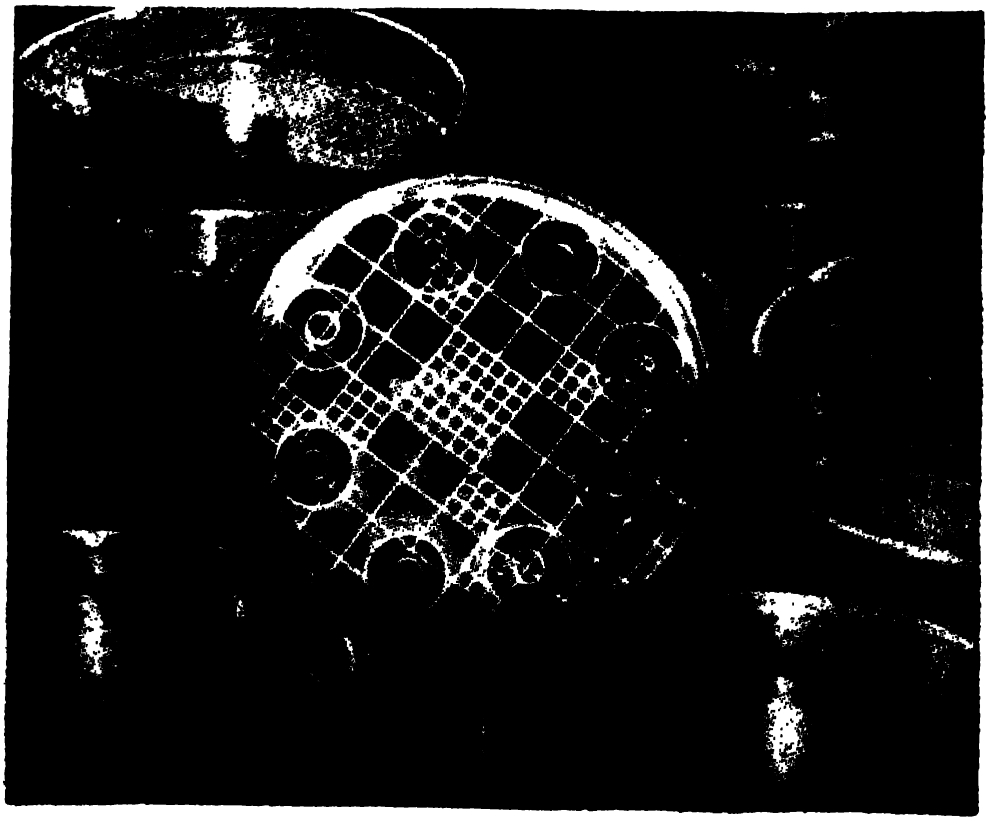

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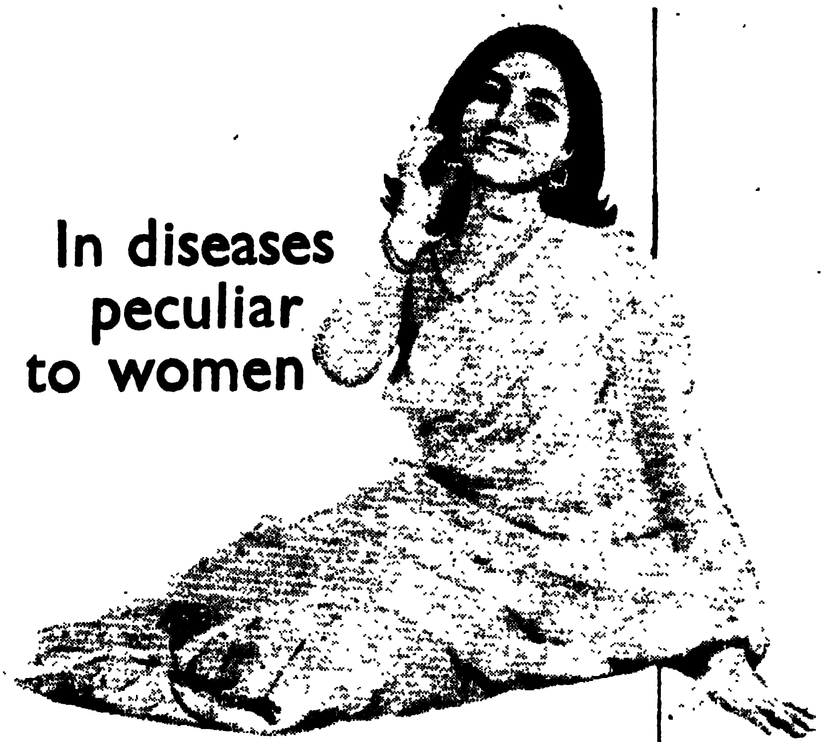

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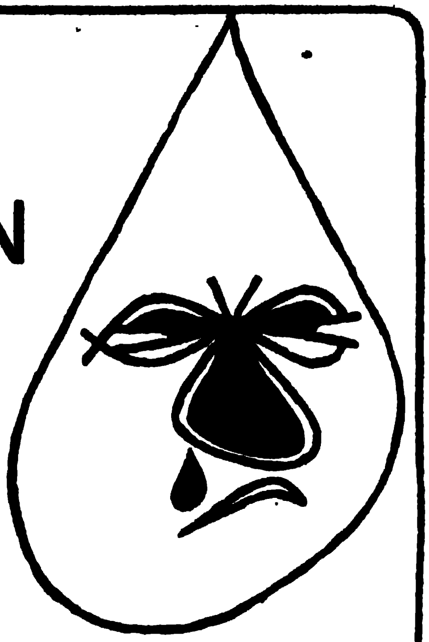

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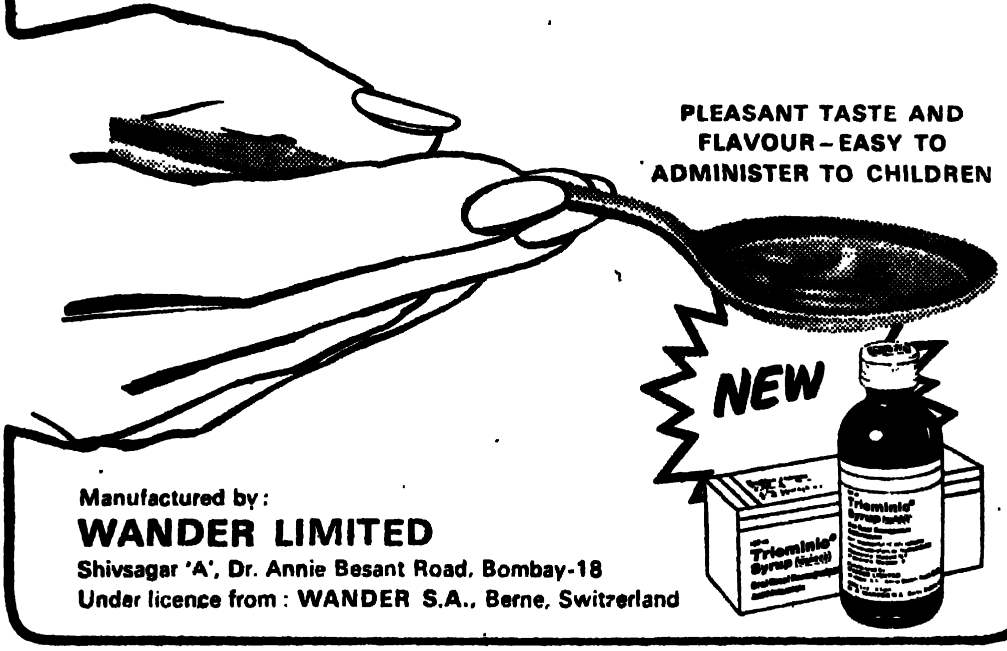

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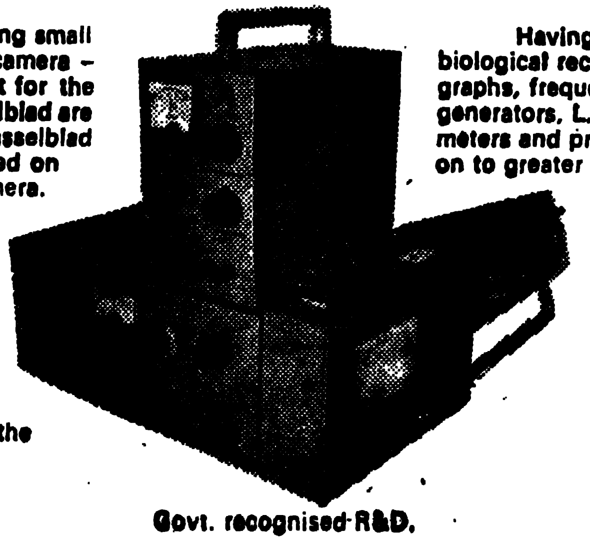

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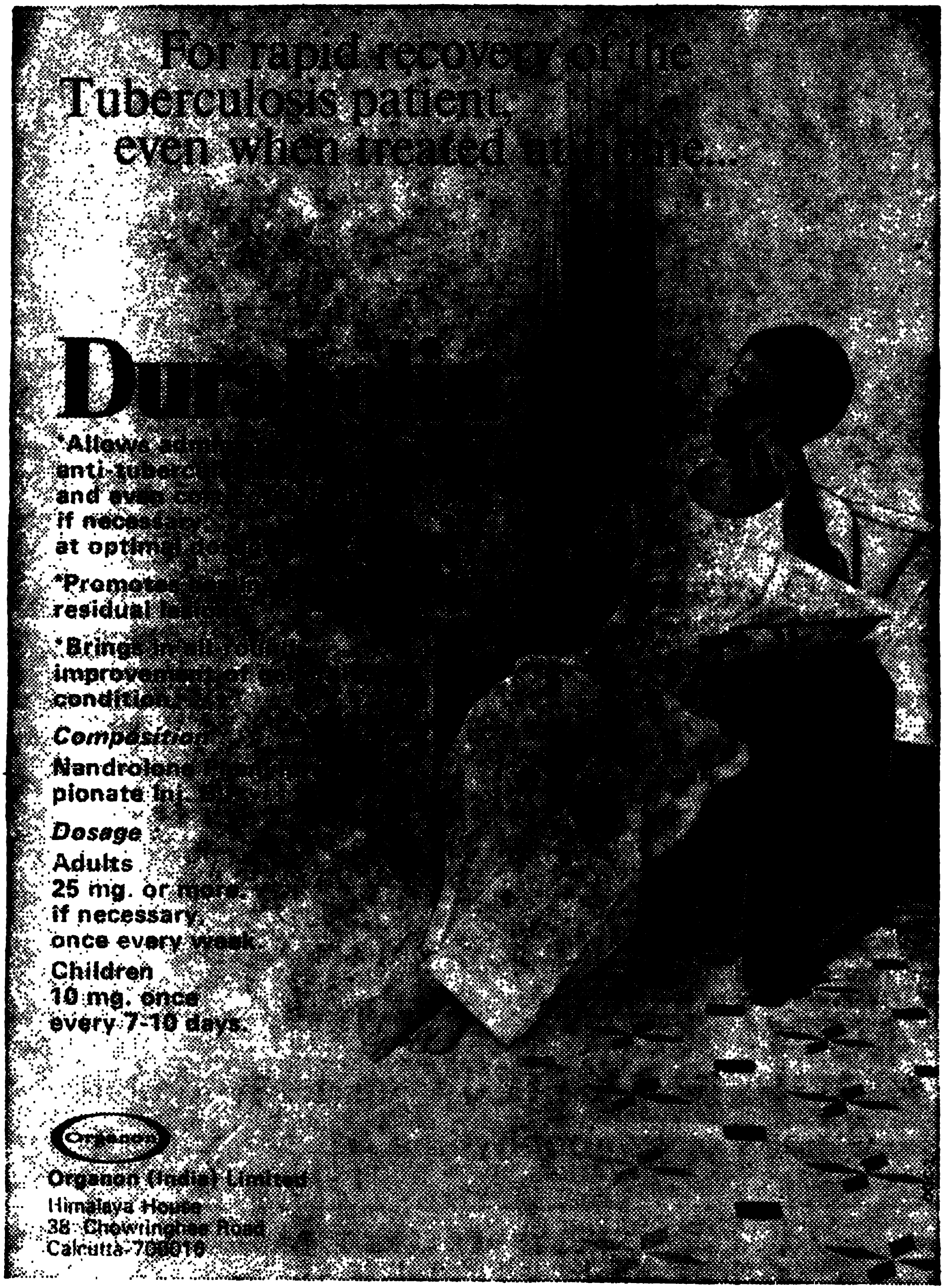

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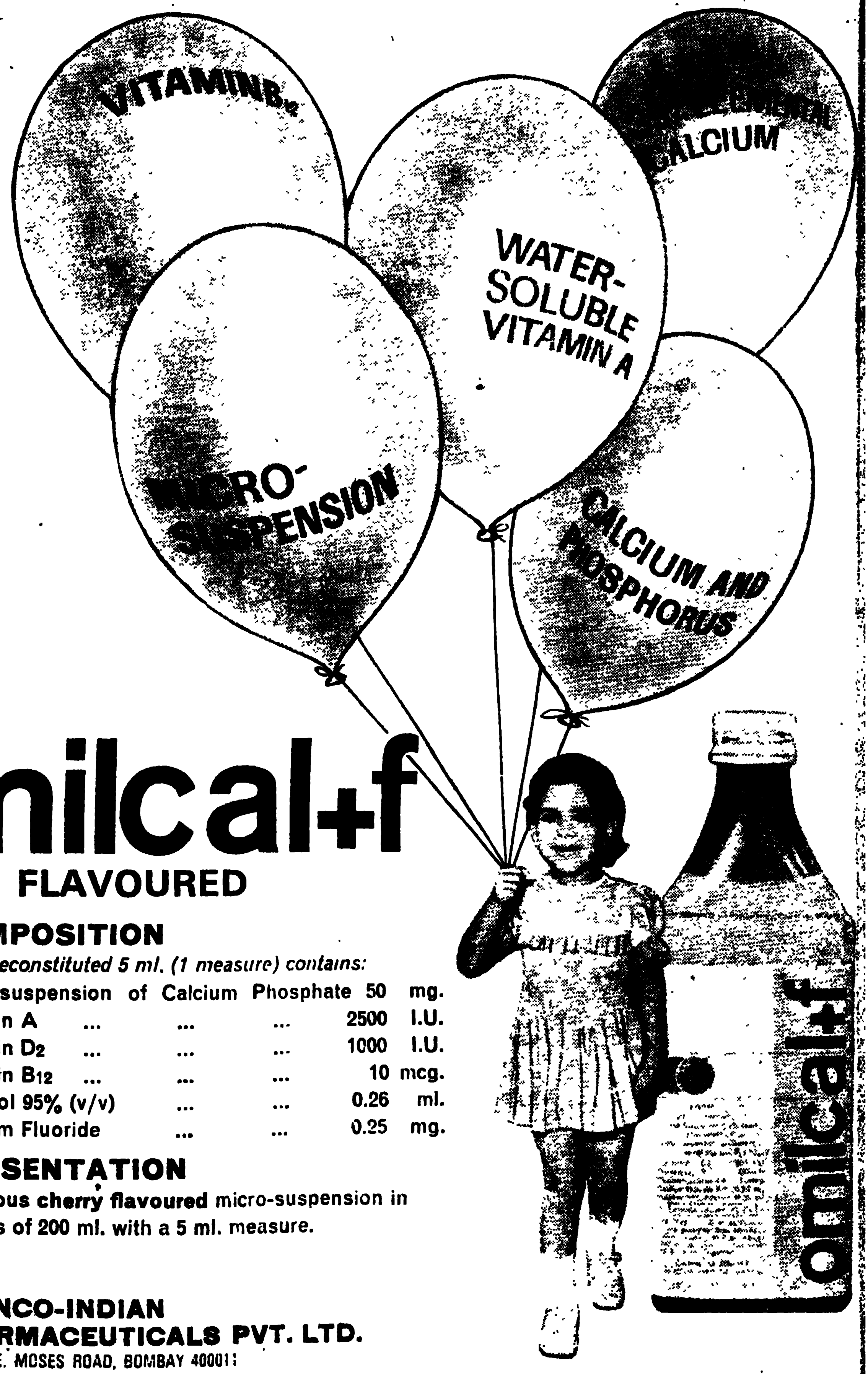

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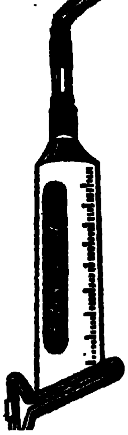

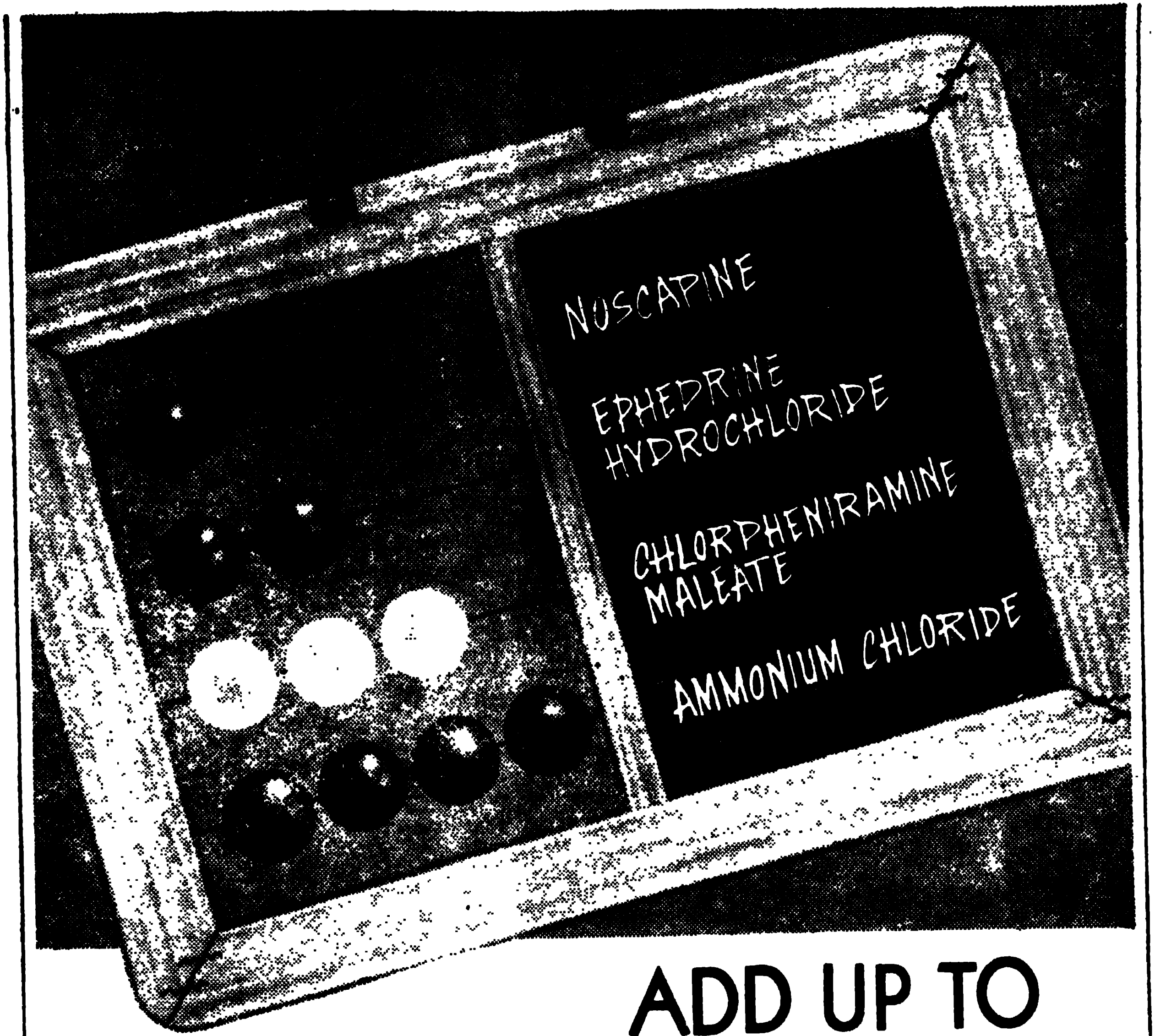

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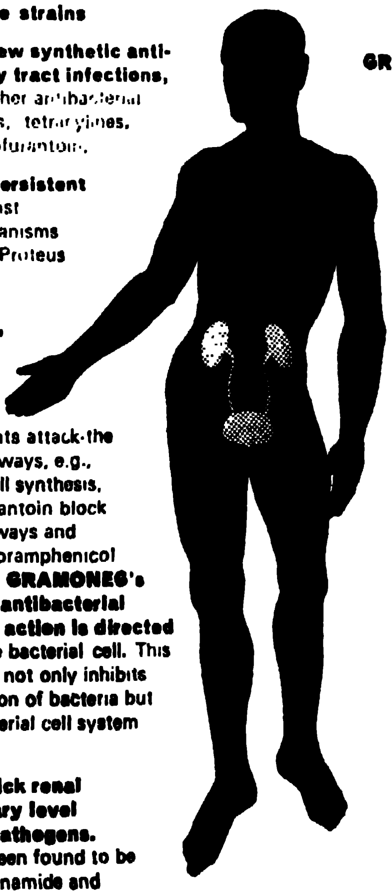

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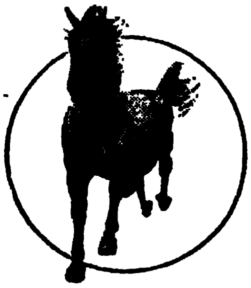

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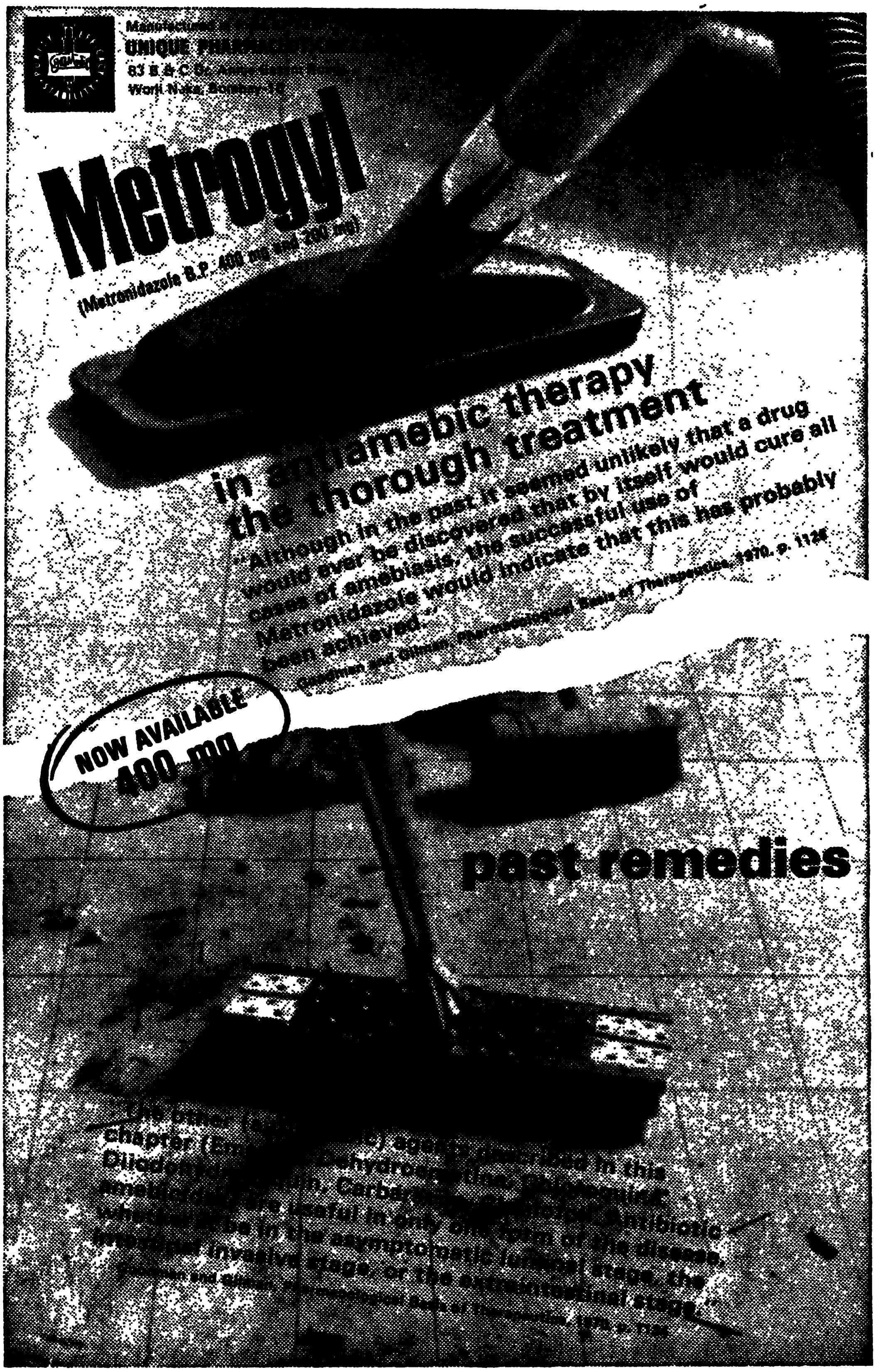

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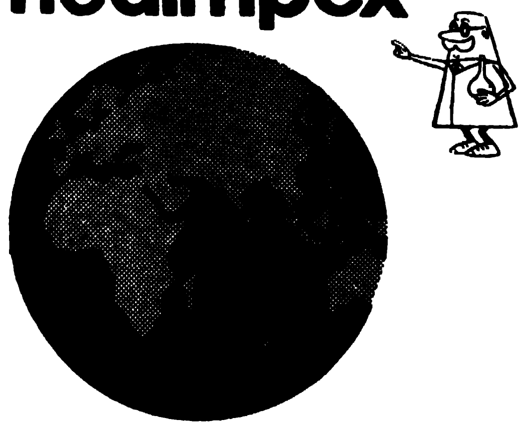

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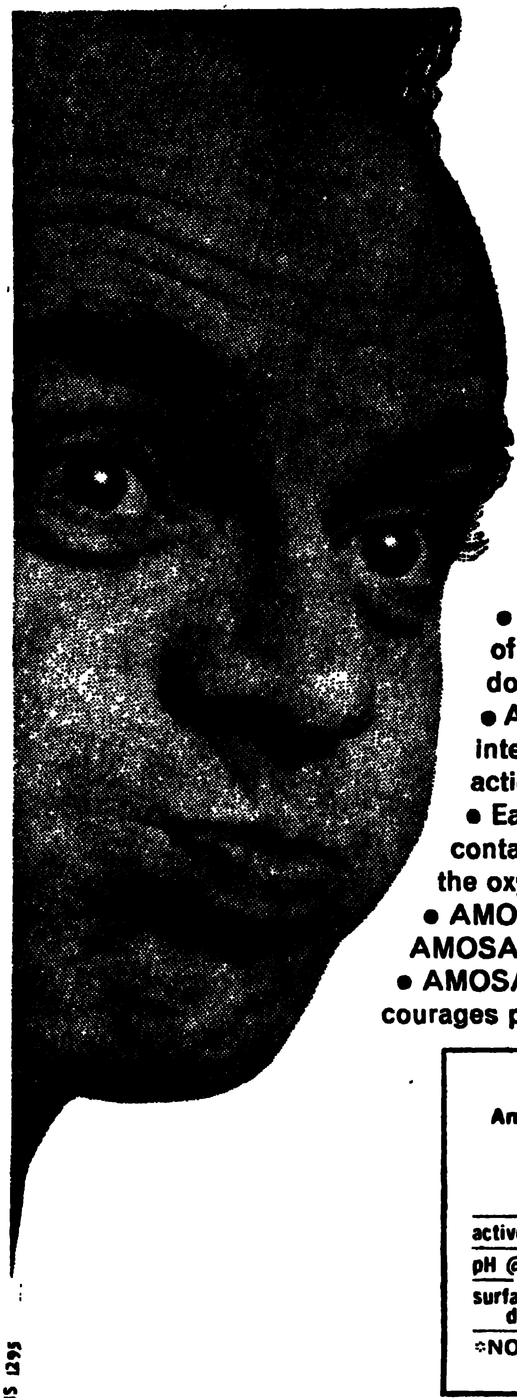

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ORIGINALS AND PAPERS

1

Some Observations on Multiple Sclerosis

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T. K. CHOUDHURI****

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Multiple sclerosis, is said to be a disease of cold and temperate climates (Mathews and Miller, 1972), but its incidence is in no way insignificant in India (Sen, 1970). It is accepted that in an adult, unilateral retrobulbar neuritis is rarely due to any cause other than disseminated sclerosis (Meadows, 1970) and ophthalmic surgeons in this country come across these cases quite frequently (Sengupta, 1970). In the present paper, assessment has been made regarding the incidence and mode of presentation of multiple sclerosis by the combined study from the neuro ophthalmology, neurology and neurosurgery units of two hospitals at Calcutta.

MATERIAL AND METHOD

The study is based on patients attending neuro ophthalmology clinic and neurosurgery out patient department, Medical College Hospitals, Calcutta during the period May 1968 to November 1971 and department of neurology and neurosurgery, Calcutta National Medical College Hospital between December 1971 and December 1972.

As there is no definite diagnostic test for multiple sclerosis, diagnosis has been based on clinical data and other ancillary investigations which ruled out allied conditions. Complete recovery following initial attacks and recurrence of symptoms have been considered as important criteria.

OBSERVATIONS

During the above period 7536 patients attended the above departments of which 85 were diagnosed as multiple sclerosis.

Age and sex The youngest patient was a girl of 9 years and the oldest patient was a male aged 58 years. 65.9 per cent patients belonged to 21-40 years age group (Table 1).

Table 1 –*Showing the Incidence of Age and Sex*

Age in years	Male	Female	No. of cases
1-10	--	1	1
11-20	2	7	9
21-30	10	15	25
31-40	12	19	31
41-50	8	7	15
51-60	2	2	4
Total	34	51	85

Manifestations – Seventy seven patients (90 per cent) out of 85 presented with visual manifestations and in 8 patients presenting features were weakness of limbs (Table 2).

Though 90 per cent patients presented with visual symptoms only, examination revealed that except 16 cases all had disseminated lesions, during first attendance to the hospital. Of these 16, 15 patients developed diffuse lesions subsequently ; the other had only spinal manifestation. Table 3 shows the extent of neurological involvement during follow-up period.

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Table 2—*Showing Presenting Features*

Presenting features	No. of cases	
A. Visual symptoms:		77
i) Loss of acuity of vision		
a) Unilateral	11	
b) Bilateral	8	
ii) Double vision	21	
iii) Drooping of eyelid	11	
iv) Field defect	2	
v) Combination of above visual symptoms	24	
B. Weakness of limbs:		8
i) One upper limb	1	
ii) One half of body	1	
iii) Both lower limbs	6	

Table 3—*Showing Incidence of Clinical Findings*

Clinical findings	No. of cases	Total
A. Ocular		
1) Optic neuritis:		53
Papillitis	9	
Retrobulbar neuritis	44	
2) Ocular palsies:		41
Sixth nerve palsy	18	
Incomplete third nerve palsy	10	
Combined third and sixth nerve palsies	13	
3) Nystagmus		21
4) Superior gaze palsy		1
5) Pupillary change		14
6) Field change		53
B. Long tract signs		
1) Monoplegia:		4
a) Brachial	1	
b) Crural	3	
2) Paraplegia		3
3 Hemiplegia		1
4) Increased jerks		59
5) Extensor plantar response		38
6) Posterior column affection		8

Recurrence—In the present series, 49 patients had recurrent attacks, 21 had attacks before coming under our observation. In this group, 9 patients had recurrence during our follow-up period. The remaining 28 patients developed symptoms and signs of recurrence while under observation.

Investigations—In patients with ocular signs, x-ray examination of skull and orbit was done. Skiagraphy of spine was also done in patients with tract signs. Patients with hemiplegia were investigated for intracranial space occupying lesion. Cerebral angiography was done in 31 cases. Myelography was done in 7 cases and combined angiography and myelography were done in 4 cases. Routine cerebrospinal fluid (CSF) study was done in 47 patients. Estimation of gamma globulin of CSF and electrophoretic study could not be arranged for. The investigations were planned according to the mode of presentation. In all these cases, investigation findings were non-contributory.

Follow-up—The period of follow-up is shown in Table 4.

Table 4—*Showing the Follow-up Period*

Follow-up	No. of cases
4 years	14
3 years	11
2 years	23
1 year	19
Less than one year	4
Lost contact	12

DISCUSSION

Multiple sclerosis is a disease where no definite diagnostic test has yet been evolved and the diagnosis is essentially clinical (Brain and Walton, 1969). In the present study, the diagnostic criteria were: i) Past history of similar attacks or recurrence in the follow-up period after varying lucid interval, ii) almost complete recovery in early attack, iii) signs of involvement of central nervous system by plaques.

A total of 7536 neurological patients came under our observation during the study period of which 85 were diagnosed as multiple sclerosis. One has to be very careful in making any inference regarding the incidence of multiple sclerosis from our survey because we are getting only selected and referred cases, not only from various districts of West Bengal but also from neighbouring States of Eastern and Northern India; but it can be said that though multiple sclerosis is common in temperate climates (Acheson, 1965) it is not rare in India.

65.9 per cent patients in this series belonged to 21-40 years age group. Another nine patients in 41-50 years age group had their first attack between 31-40 years prior to attendance to our departments. So a total of 76.5 per cent patients had their first attack between 21-40 years in conformity with all standard series.

Out of 85 cases in our series, 77 patients (about 90 per cent) presented with visual symptoms which appear to be very high in comparison to Brain and Walton's (*loc. cit.*) series. From observations made by different workers (Marshall, 1950; Yaskin *et al.*, 1951; McAlpine *et al.*, 1965; Brain and Walton, *loc. cit.*), it is difficult to assess the commonest mode of presentation. Clinical examination (Table 3) revealed that 96 per cent patients developed diffuse lesions in course of time and this multiplicity of lesions in subsequent attacks is in conformity with the experience of other workers.

Fifty-three patients had features of optic neuritis in this series. Nine cases presented with papillitis. In these patients vision was reduced to finger count within 24-48 hours of the onset but with treatment improvement was noticeable from 5th to 12th days and returned to almost normal (6/6 or 6/9 vision) in 6-10 weeks' time. All of them had recurrence and in two cases vision did not improve beyond 6/36 after the second attack. Multiple sclerosis, as a cause of optic neuritis, was reported earlier (Roy Choudhury and Mitra, 1969). In all the papillitis cases, optic disc oedema was 2D to 3D in the acute stage and 3 patients had macular star. We did not observe any venous sheathing as reported by other authors (Rucker, 1944 ; Johnson, 1946).

Out of 44 cases of retrobulbar neuritis, 5 were bilateral and 39 unilateral. In bilateral affections, three important conditions need exclusion, e.g., increased intracranial pressure, compression near chiasma and optic nerve and hysteria (Meadows, *loc. cit.*). In all our bilateral cases cerebral angiography and CSF study ruled out the possibility of raised tension and compression. In one girl, aged 19 years, we had suspicion of hysteria on first examination. But within 6 days she developed sixth nerve palsy and with treatment vision improved to 6/9. In these bilateral cases, though the loss of vision was almost complete, the ophthalmoscopic examination revealed no abnormality besides some pallor of the disc, a characteristic feature of retrobulbar neuritis and surprising recovery in 3-4 weeks' time was a pointer to multiple sclerosis. As all these patients had recurrence, diagnosis was not in doubt after the second attack.

In unilateral retrobulbar neuritis group, 17 patients revealed, on examination, patchy lesions over limbs, trunk and eyes. The remaining 22 patients were adults without any recurrence during the follow-up period. Meadows (*loc. cit.*) mentioned that unilateral retrobulbar neuritis in adults was rarely due to any cause other than multiple sclerosis and the same criterion was adopted for diagnosing these 22 patients.

Diplopia was present in 21 cases though ocular palsies were observed in 41 patients. Of these, 18 cases exhibited affection of the 6th cranial nerve (7 bilateral), 10 cases had incomplete 3rd nerve palsy and 13 cases had affection of both 6th and 3rd nerves. Commonest muscle involved in cases of 3rd nerve affection was levator palpebrae superioris and superior rectus. Eleven cases had similar attacks of diplopia before attending our departments which recovered completely. Another 17 cases had recurrence during one year and also developed retrobulbar neuritis. One case of 6th nerve affection had so far 7 recurrences. In his last attack he had incomplete 3rd nerve palsy in addition.

Besides nystagmus, no other cerebellar signs were present in this series ; 21 patients had only nystagmus. Ataxic nystagmus has been considered as a pathognomonic sign of multiple sclerosis (Harris, 1944). Nine of our cases had retrobulbar neuritis. Twelve cases developed nystagmus during the recovery stage of ocular muscle palsies. Out of these 21 patients, only in 2 cases of retrobulbar neuritis fine jelly nystagmus is persisting. Our observation contradicts the belief (Walsh, 1957) that central nystagmus, once developed, tends to be permanent.

We have observed retrobulbar pupil of Parson (cited by Walsh, *loc. cit.*) e.g., dilatation of the pupil while the light is still on, in 4 cases during acute stage and myopic pupil with increased response to light in 10 cases after recovery. Hippus was observed in 5 cases.

In all cases of optic neuritis, field defect was dense and there was absolute scotoma which improved on subsequent examination. One case had sector shaped defect and 5 had irregular defects in the peripheral field. Though homonymous and bitemporal defects have been reported by Chamblin and Davidoff (1954) we did not encounter any such in our series.

Excepting one, all the 8 patients with weakness of limbs had recurrence. Though this single patient did not have recurrence, the diagnosis of multiple sclerosis was based on rapid onset of paraplegia, negative CSF and myelographic findings and complete recovery of power within 4 weeks' time. Deep jerks in this patient remained brisk for 6 months. Sphincter disturbance was conspicuous by its absence in this series. In addition, in another 7 patients paresis of lower limbs developed 2-5 days after visual symptoms. All of these 15 patients recovered completely within 4 weeks.

In 59 cases, deep jerks were exaggerated. In all cases knee jerks were involved, biceps involvement was observed in 35 cases, supinator in 26, triceps in 20 and ankle jerks in 18 cases. The average time taken to regain normal jerks was 3 months, the minimum being 3 weeks and maximum 6 months. Extensor plantar response was observed in 38 cases and within 3 weeks the response returned to normal in all cases. In this series though only 8 patients presented with weakness of limbs, involvement of long tract was observed in 62 cases (74.1 per cent).

Elevation of gamma globulin in multiple sclerosis is a frequent finding (Field, 1973), but as the same phenomenon is observed in a number of neurological disorders like postvaccinal encephalitis, polyarteritis nodosa or even in neurosyphilis, it has no confirmative value (Caspary, 1965). In this series we could not do gamma globulin estimation.

All the patients of this series were treated with oral dexamethasone or betamethasone for periods varying from 3 to 4 weeks and response was very encouraging. There was no major side effect of steroid therapy in this group.

SUMMARY

Eighty-five cases of multiple sclerosis with their presenting features have been analysed. The ocular manifestation was as high as 90 per cent in this series. Nystagmus, once developed, was not a permanent feature. In 74.1 per cent cases involvement of long tract was evident though only 0.9 per cent presented with weakness of limbs.

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2

Ulcerative Colitis in Southern Maharashtra

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There is a general though erroneous impression that ulcerative colitis is rare in India.

As early as 1939, Chopra and Ray reported a series of 120 cases from Calcutta. Later on Choudhury *et al.* (1954) reported a study of 31 cases followed by Pasricha *et al.* (1958) reporting 28 cases. Chuttani *et al.* (1967) made a survey of medical records of leading hospitals in India for the period 1956-1960 and reported an incidence of 9.4 per 10,000 hospital admissions. Chuttani (1968) presented a series of 122 cases at a symposium on ulcerative colitis at Chandigarh. There have been many other reports (Gadekar, 1962; Tandon *et al.*, 1964; Tandon *et al.*, 1965; Vakil and Mehta, 1967) from different parts of India. In a gastroenterology clinic in Bombay, out of 2000 cases attending the clinic a year there were about 26 cases of ulcerative colitis (Jeejebhoy, 1968; Jha, 1972). These reports suggest a possibility that a proportion of Indian patients treated as chronic dysentery may in fact be suffering from non-specific ulcerative colitis.

The present report is on the study of 122 cases seen and admitted in the Wanless Hospital, Miraj in Southern Maharashtra during the period 1965-1972.

MATERIAL AND METHOD

The diagnosis of ulcerative colitis was made on the following criteria:

a) History of recurrent or continuous attacks of diarrhoea with blood and mucus or mucus

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only, not responding to repeated courses of anti-amoebic and antibacterial therapy.

b) Negative results of examination of three specimens of stools for amoebic infection, protozoal infestation and culture for any pathogenic bacteria.

c) Sigmoidoscopic examination and grading of the findings according to Matts' classification (Matts, 1961) : Grade I—normal, Grade II mild granularity of mucosa with mild contact bleeding. Grade III—presence of marked granularity with oedema of mucosa, marked fragility with contact bleeding and spontaneous bleeding. Grade IV—severe ulceration of mucosa with haemorrhages and/or pseudopolyposis.

d) Colonic/rectal biopsy : Results were graded into five grades as per Matts' (*loc. cit.*) classification : Grade I—normal, Grade II—some infiltration of the mucosa, or of lamina propria with either round cells or polymorphs. Grade III - marked cellular infiltration of lamina propria and submucosa. Grade IV—presence of cryptic abscess with marked infiltration of all the layers of the mucosa. Grade V—ulceration, erosion, and necrosis of the mucosa with cellular infiltration of some or all of its layers.

e) Barium enema and radiological extent of the disease were grouped according to the following groups : i) Normal, ii) distal colitis i.e., abnormalities confined to the rectum or sigmoid, iii) universal colitis—when there was involvement of entire colon, iv) extensive colitis and v) evidence of pseudopolyposis.

OBSERVATIONS

Incidence—Total number of admission during the period of study from 1965-1972 were 50,000. Total number of cases of ulcerative colitis was 122. Incidence was 24.4 per 10,000 admissions.

Age and sex—Maximum number of cases were in the age group of 21 to 30 years, next was in the age group of 31 to 40 years. Eighty one cases were males and 41 were females (Table 1).

Table 1—*Showing the Age and Sex Incidence in Ulcerative Colitis*

Age group (in years)	Male	Female	Total	Percentage
12-20	15	2	17	13.9
21-30	31	15	46	37.7
31-40	25	16	41	33.6
41-50	5	5	10	8.2
51-60	2	3	5	4.1
Above 60	3	0	3	2.4

Duration of symptoms—It varied from less than three months to more than five years. Maximum number had the symptoms for 3 to 6 months (26 cases) and next in the group 1 to 2 years (25 cases). Of the rest, the duration of symptoms was less than 3 months in 15 cases, between 6 months and 12 months in 16 cases, 2-5 years in 24 cases and over 5 years in 16 cases.

Types of disease History of remission and relapses was the most common (70 per cent). Only 1.5 per cent had chronic continous type. Most of them had been treated as chronic dysentry with different antibiotics and anti-amoebic drugs, often with temporary remission with relapse off and on (69.5 per cent).

Symptoms Majority of the cases (Table 2) presented with the symptoms of loose stools with blood and mucus or with the history of loose stools with mucus only (38 per cent in either group), together forming the most common presenting symptoms (76 per cent). Next common symptoms was pain in abdomen (73 per cent). Loose motion without blood or mucus was very rarely complained of (5.5 per cent). Only one patient complained of chronic constipation.

Table 2—*Showing the Incidence of Symptoms in Ulcerative Colitis*

Symptom	No. of cases	Percentage
Loose stools with blood and mucus	46	38
Loose stools with mucus only	46	38
Well formed stools with blood	9	7
Loose stools without blood and mucus	7	5.5
Pain in abdomen	89	73
Griping	11	9
Tenesmus	12	10
Loss of weight	32	26
Loss of appetite	46	38
Weakness	20	17
Constipation	1	0.8
Cramps	Nil	—
Milk intolerance	Nil	—
Wheat intolerance	3	2.5
Flatulence	18	15
Fever	14	12
Backache	5	4
Arthralgia	3	2.5

Physical signs Thickening and tenderness over the descending colon and sigmoid (Table 3) was the most common physical finding (60 per cent). Pallor or anaemia was the next in frequency (57.5 per cent).

Sigmoidoscopic findings—Sigmoidoscopy was done in 106 cases (Table 4). The findings were graded according to Matts' classification into four grades (Matts, *loc. cit*). Maximum number were in grade II (82 per cent).

Table 3—*Showing Physical Signs in 122 Cases of Ulcerative Colitis*

Signs	No. of cases	Percentage
Pallor or anaemia	70	57
Thickening or tenderness over descending colon or sigmoid	73	60
Generalised abdominal tenderness	34	28
Thickening or tenderness over caecum or ascending colon	21	18
Palpable liver	22	18
Splenomegaly	5	4
Oedema over feet	11	9
Clubbing	1	0.8
Neuropathy	Nil	—
Pellagrous dermatitis	1	0.8

Table 4—*Showing Sigmoidoscopic Findings in 106 Cases of Ulcerative Colitis*

Matt's classification	No. of cases	Percentage
Grade I: Normal	Nil	Nil
Grade II: Mild granularity of mucosa with mild contact bleeding	87	82
Grade III: Marked granularity with oedema of mucosa, marked fragility with contact and spontaneous bleeding	16	15
Grade IV: Severe ulceration of the mucosa with hemorrhage or pseudopolyposis	3	3

Histology- Histological changes on colonic/rectal biopsy are shown in Table 5. Colonic/rectal biopsy was done in 58 cases. Findings were graded into five grades following Matts' classification (Matts. *loc. cit.*). Maximum number were in grade II (36 cases). Only in two cases the findings were of grade V.

Table 5—*Showing Histological Findings on Mucosal Biopsy of Colon/Rectum in 58 Cases (Graded according to Matts' Classification)*

Grade	No. of Cases
Grade I: Normal	5
Grade II: Some infiltration of the mucosa, or lamina propria, with either round cells or polymorphs	36
Grade III: Marked cellular infiltration of lamina propria and submucosa	15
Grade IV: Presence of cryptic abscesses with marked infiltration of all the layers of the mucosa	Nil
Grade V: Ulceration, erosion, and necrosis of the mucosa with cellular infiltration of some or all of its layers	2

Radiology—Barium enema and skiagram (Table 6) were done in 107 cases. Barium enema and x-ray showed loss of haustation in descending colon (Fig. 1). Highest number of cases (39 per cent) had distal colitis evidenced by radiological abnormalities confined to rectum and sigmoid colon. Only in five cases (4.5 per cent) barium enema and skiagram was normal.

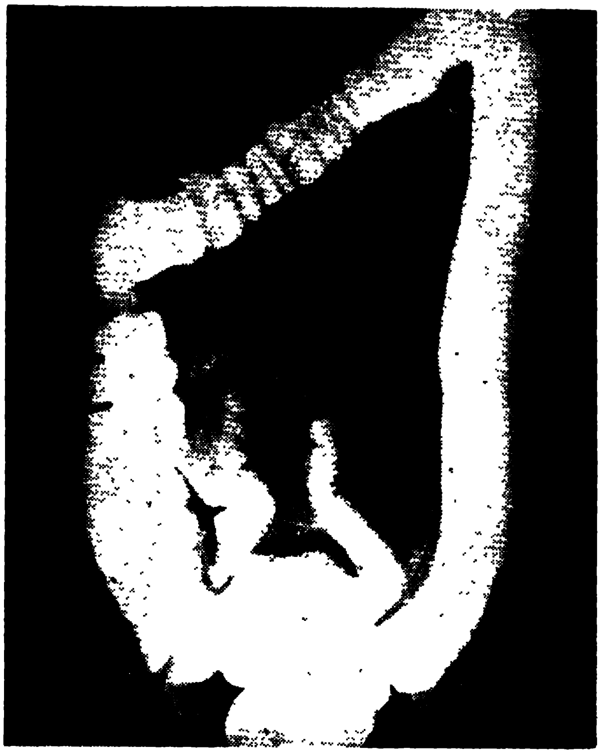

Fig. 1—Showing Loss of Haustration of Descending Colon

Table 6—*Showing Radiological Extent of Disease on Barium Enema in 107 Cases*

Extent of disease	No. of cases	Percentage
Normal	5	4.5
Distal colitis—radiological abnormalities confined to rectum or sigmoid	42	39
Universal colitis—involvement of entire colon	34	33
Extensive colitis—not universal	18	16
Evidence of polyposis	8	7.5

Complications—Incidence of complications are shown in Table 7. Complications were very few. Arthritis and arthralgia were the commonest complications (4.1 per cent). Perforation was a rare complication occurring in 2 cases (1.6 per cent).

Table 7—*Showing Incidence of Complications*

Complication	No. of cases	Percentage
Perforation	2	1.6
Arthralgia	1	0.8
Arthritis	4	3.3
Prolapse rectum	2	1.6

Progress—Course of the disease is shown in Table 8. Remissions occurred in maximum number of caes (30 per cent). Partial improvement, not amounting to complete remission, occurred in a number of cases (24 per cent). But relapses were quite common (23 per cent).

Table 8—*Showing the Course in Ulcerative Colitis*

Course of the disease	No. of cases	Percentage
Remission	37	30
Improved but not complete remission	29	24
Relapse	28	23
No improvement	2	1.6
Not followed	26	21

DISCUSSION

Ulcerative colitis is often thought to be a disease of the Western countries. Reports from different parts of the world e.g., from Africa (Sampson and Waker, 1967), Middle East (Salem and Shubair, 1967) show that it has a world-wide distribution. Incidence reported from Chandigarh was 0.28 per cent (Chuttani. *loc. cit.*). An average of 20-25 cases were seen in a year at All-India Institute of Medical Sciences, Delhi (Tandon, 1968). Only 5 cases a year were reported from a hospital in South India (Pulimood, 1968). Even amongst the Armed Forces personnel who are a selective group who join after a preliminary medical examination the incidence was 0.39 per cent (Jha, *loc. cit.*). From the information collected from different hospitals in India, the overall admission rate of this disease was found to be an average of 10 cases per 10,000 hospital admission (Chuttani *et al., loc. cit.*). This is not very different from the reported incidence of roughly 80 per 100,000. Incidence from USA is reported to be 50-100 per 10,000 hospital admissions. The incidence of ulcerative colitis in the present series was 24.4 per 10,000 admissions. So it is apparent that the incidence of this disease in India is not very low compared to those in the Western countries.

The majority of the cases in the present series occurred in the age group 21 to 30 years. Similar age incidence is reported from other parts of India (Chuttani, *loc. cit.*). Incidence from another report appears to be more at a higher age, maximum incidence was in the age group 31 to 40 years, (Chuttani *et al., loc. cit.*). As for sex incidence, twice the number of cases were in males. But this sex incidence may not be significant because for many reasons other than physical illness, females in this country are reluctant to get admitted in the hospital. Reports from Western countries indicate that the incidence is more common in females (Sloan *et al.*, 1950; Edwards and Truelove, 1963, 1964).

Duration of symptoms in the present series varied from less than 3 months to more than 5 years but the maximum cases had the symptoms for 3-6 months. Other authors from India reported that the maximum number had the symptoms for more than 5 years (Chuttani, *loc. cit.*). Average duration of symptoms in reported series from India was 3.2 years (Chuttani *et al., loc. cit.*). Duration of symptoms in the present group was shorter as compared to other reports from India as well as compared to reports from Western countries (Sloan *et. al., loc. cit.;* Edwards and Truelove, 1963, 1964).

Commonest symptoms in this series were frequency of stools with or without blood but with mucus. Pain in abdomen was the next common symptom. Similar type of incidence of presenting symptoms are reported from other parts of India (Chuttani *et al., loc. cit.;* Chuttani, *loc. cit.*).

Sigmoidoscopic findings in most of the cases in this series were in grade II (Matts, *loc. cit.*). Other reports from India indicate higher incidence of grade III changes (Chuttani *et al., loc. cit.*; Chuttani, *loc. cit.*; Jha, *loc. cit.*). On the whole, sigmoidoscopic findings in majority of cases in India are of the nature of milder grade as compared to those from other countries.

Colonic/rectal biopsy was done in 58 cases. Most common findings were of grade II, next was in grade III (Matts, *loc. cit.*). Some have reported similar findings as that in the present series (Jha, *loc. cit.*), whereas others from India have reported incidence of higher grades of changes in most of their cases (Chuttani *et al., loc. cit.*). Radiologically, the extent of the disease was found to be localised to distal colon i.e., confined to rectum and sigmoid colon in most of the cases (39 per cent). Similar incidence of limited colitis were reported by others (Chuttani *et al., loc. cit.;* Jha, *loc. cit.*).

Complications, either local or affecting distal parts, were infrequent in the present series occurring in 7.3 per cent cases. Higher incidence of complications (26 per cent) was reported in another series in India (Chuttani *et al., loc. cit.*). This is much lower than the reported incidence of complications of 31-40 per cent in Western series (Ricketts and Palmer, 1946; Dennis and Karlson, 1952). Arthritis and arthralgia were the commonest (4.1 per cent) amongst the complications. A specific type of colitic arthritis differing from rheumatoid arthritis radiologically and serologically has been described (Wright and Wilkinson, 1965). On a prospective study of 234 cases of colitis, they noted radiological evidence of sacro-ilitis with or without symptoms in 42 cases (18 per cent). In the present series, there was evidence of arthritis of sacroiliac joints in four cases (3.3 per cent). Perforation occurred in two cases (1.6 per cent). It is comparable to the reported incidence in one case in a series of 50 cases (Pimparkar *et al.*, 1971), and one in 57 cases (Vakil and Mehta, *loc. cit.*). Reported incidence of perforation from other countries varied from 1.6 per cent to 9 per cent (McInerney *et al.*, 1962; Edwards and Truelove, 1963; Sampson and Walker, *loc. cit.*). Remissions and relapses were the commonest course in these cases (30 per cent), improvement without complete remission occurred in less number of cases (24 per cent)'; only a small minority (1.6 per cent) failed to improve. None of the cases which could be followed needed surgical therapy.

SUMMARY

One hundred and twenty-two cases of ulcerative colitis, admitted in Wanless Hospital in Southern Maharashtra, were studied with special reference to clinical features, sigmoidoscopic findings, mucosal biopsy and radiological appearances. The incidence of ulcerative colitis in India is not rare though the severity, extent and incidence of complications are milder and rarer than what is reported from other countries.

A high index of suspicion is needed to isolate cases of ulcerative colitis from a substantial group of cases treated with repeated courses of antidysenteric drugs with frequent relapses.

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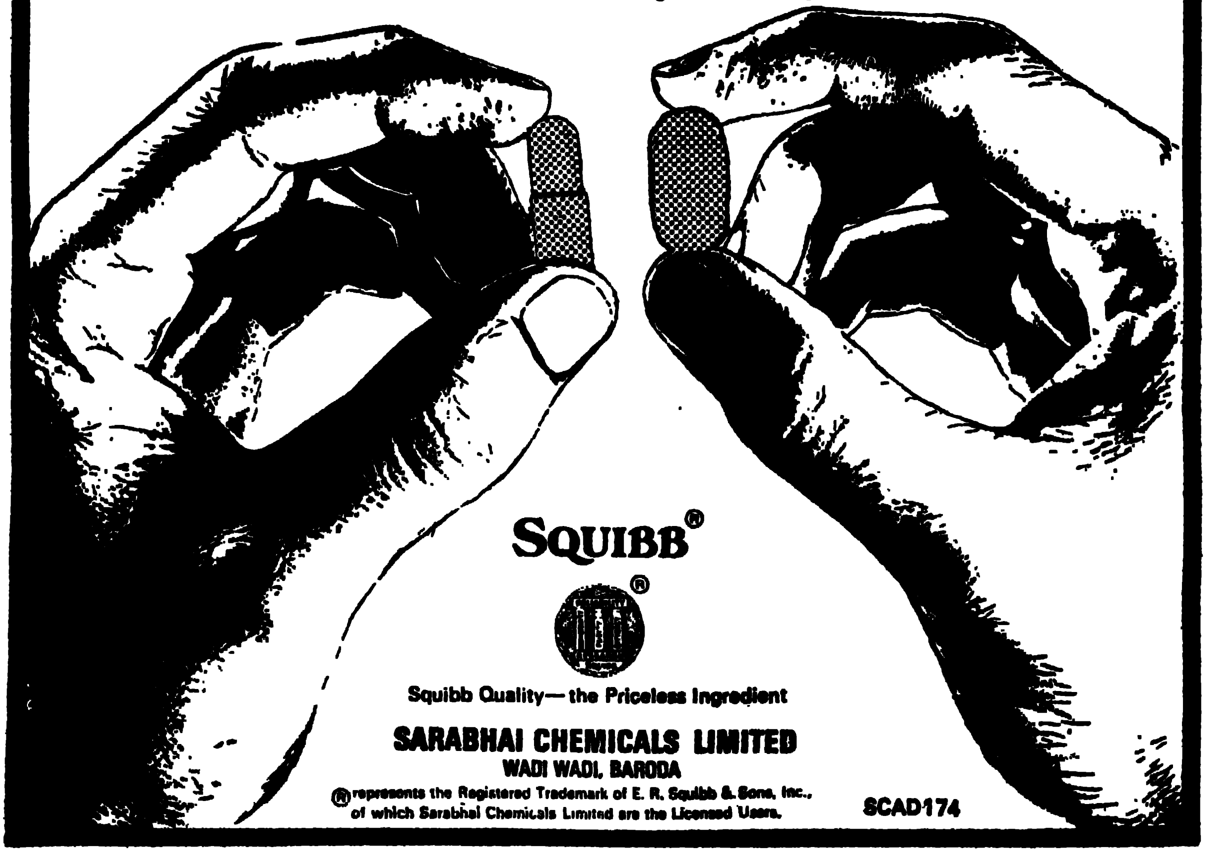

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3

Toxoplasma Antibodies in Cases of Undiagnosed Lymphadenopathy

J. K. DUTTA*, O. PRAKASH**

[*Received for publication January 29, 1973*]

Toxoplasmosis may involve any organ of the body; uveal tract, lymph nodes, generative organs, respiratory tract, myocardium, liver, central nervous system, etc. Lymphadenopathy is a well known clinical manifestation. Siim (1956), the Danish worker first drew attention to this clinical picture. In our country lymphadenopathy is an extremely common condition, but in several cases the aetiological diagnosis cannot be established even after repeated investigations. Some of these undiagnosed cases may be of toxoplasmic origin.

Different serological tests like Sabin Feldman dye test, complement fixation test, neutralisation test, indirect fluorescence tests have been advocated for diagnosis of toxoplasmosis. Haemagglutination test (H.A. test) for detection of toxoplasma antibodies was originally described by Jacobs and Lunde (1957). It has the advantage that it does not involve dealing with living parasites and the technique is comparatively easier. In a comparison of dye and H.A. tests on sera of suspected toxoplasmic uveitis Lunde *et al.* (1963) found good agreement between the two tests

MATERIAL AND METHOD

In Balak Ram Hospital, Delhi, 46 cases with enlargement of lymph nodes were investigated for evidence of toxoplasma infection. The group comprised indoor and outdoor patients. Their age varied from 5 to 50 years. There were 38 males and 8 females. Patients were carefully examined to find out sources of infection, if any, in the scalp, throat, tonsil, ear, leg and feet to account for regional lymph node enlargement. After thorough clinical examination, haematological investigations like total and differential leucocyte count, haemoglobin, ESR estimation were done. X-ray examination of chest and Mantoux test were also carried out. In some cases histological examination of biopsy material from the lymph node was undertaken to exclude malignancy and tuberculosis. Patients who failed to show any cause to account for lymph node enlargement after above investigations formed the material for present study. Sera were collected from these patients for indirect H.A. test for toxoplasmosis. Tests were carried out in Toxoplasma Reference Centre in Microbiology Department of All India Institute of Medical Sciences, New Delhi as per method described by Prakash (1966).

In 4 cases of proved tuberculous lymphadenitis H.A. test was also carried out. In 20 control cases, sera were tested for toxoplasma antibodies by H.A. test. The control group comprised patients suffering from diseases like diarrhoea, hookworm anaemia, chronic bronchitis, injury, etc., which are not recognised to be caused by toxoplasma infection.

RESULTS AND DISCUSSION

Studies on toxoplasmosis have been very fragmentary in this country more so in relation to lymphadenopathy. In the present study 46 patients with lymph node enlargement were screened for toxoplasmosis. Most of the patients had enlargement of cervical lymph nodes (Table 1). ESR was not abnormally high in any case. Enlargement of spleen and/or liver was not present in any patient. Some of the patients presented with enlargement of lymph node as primary complaint. In others, lymph node enlargement was detected during routine clinical examination. Pyrexia of varying degree was associated in 26 cases. In a few patients with remittent/intermittent type of temperature additional investigations like blood culture, Widal test, brucella agglutination test were done to exclude other causes of pyrexia. The results were negative in all cases.

Table 1—*Showing Results of Haemagglutination Test (H.A. Test) in Relation to Age Group of Patients*

Age group (years)	Total No. of cases	Site of lymphadenopathy			H.A. titre 16 or more
		Cervical	Inguinal	Multifocal	
1—10	26	18	1	7	6
11—20	17	13	—	4	1
21—50	3	3	—	—	1
Total	46	34	1	11	8

Out of 46 cases investigated, H.A. test was positive in 8 (17.39 per cent) cases (Table 2). The

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Table 2—*Showing Results of Haemagglutination Test (H.A. Ttst) in Different Groups of Lymphadenopathy Cases*

Group	No. of cases investigated	H.A. titre 16 or more	
		No. of cases	Percentage
Cervical lymphadenopathy	34	7	20.59
Inguinal lymphadenopathy	1	—	—
Multifocal lymphadenopathy	11	1	9.09
Total	46	8	17.39
Control	20	1	5

titre was 256 in 1 case (2.17 per cent) while in others it varied from 16 to 64 (Table 3). A titre of 200 or higher has been considered diagnostic (Chordi *et al.*, 1964). Judging the results from that angle only 1 case could be diagnosed with certainty as a case of lymphadenopathy due to toxoplasmosis. There was hardly any specific clinical feature which could give clue to suspect the diagnosis. So other common causes of lymphadenopathy have to be excluded by appropriate investigations before considering toxoplasmosis as a possible cause. In the control group, antibodies against toxoplasma were found in 1 (5 per cent) patient. The titre was 64.

Three patients with titre of 64 had associated pyrexia. Haematological examinations were nonspecific. Since other causes had been excluded after suitable investigations, lymphadenopathy of toxoplasmic origin is the likely explanation. In remaining 4 cases where the titre was 16, no positive conclusion could be drawn. However the possibility of specific parasites persisting in the presence of antibodies in low titres can not be ruled out. Walls *et al.* (1963) isolated toxoplasma from the brain of a patient with a dye test titre of 4. Remington and Cavanaugh (1965) obtained the parasite from skeletal muscle and brain of 5 patients, 2 with titre of 4 ; 1 each with a titre of 16, 64 and 256. Some of them had received corticosteriod therapy.

In 4 cases lymphadenopathy was found to be tuberculous in origin after biopsy examination and radiological investigations. H.A. test was negative in all of them. Evidently there was no overlapping of toxoplasma antigen in these cases.

The result obtained in this study is fairly comparable with that of Prakash (*loc. cit.*) who investigated 327 cases of suspected toxoplasmosis with varied clinical manifestations and obtained 14 per cent positive result. In his series titre of 200 was obtained in 3.9 per cent cases. He studied only 3 patients with lymphadenopathy and found negative results in all of them.

SUMMARY

Forty-six patients with lymphadenopathy in cervical, inguinal or multiple areas were screened for toxoplasma antibodies by indirect haemagglutination test (H.A. test). The size of the lymph nodes varied from pea to that of marble. In 8 cases (17.39 per cent) H.A. test was positive. Out of these 1 case (2.17 per cent) had a titre of 256. In 3 (6.52 per cent) cases the titre was 64 and in 4 (8.7 per cent) it was 16. The results are suggestive of the prevalence of toxoplasmic lymphadenopathy in this country and further surveys may add more valuable information.

Table 3—*Showing Haemagglutination Titre (H.A. Titre) and Other Associated Features in Positive Cases*

Sl. No.	Name, age (years) and sex	H. A. titre	Site of lymph node enlargement	Size of lymph node	Other features
Cases					
1.	K.D., 22, M	256	Cervical glands	Marble size	Fever—Intermittent type
2.	P.M., 10, F	64	" "	Pea to marble size	Fever—off and on
3.	J.D., 8, M	64	" "	Pea to marble size	Fever with sore throat
4.	B.K., 7, M	64	" "	Pea to marble size	Low grade fever
5.	L.M., 11, M	16	" "	Pea size	Low grade fever
6.	L.N., 7, M	16	Cervical and axillary glands	Pea to marble size	No fever
7.	R.V., 6, M	16	Cervical glands	Pea size	No fever
8.	B.N., 10, F	16	Cervical glands	Marble size	No fever, pain in knee joints, tonsils enlarged
Control 1.	K.L., 10, F	64	—	—	Injury foot

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4

A New Antidiabetic Agent

S. DAS GUPTA*, A. B. MUKERJEE**

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The use of sulphonylurea derivatives in the treatment of maturity onset diabetes by oral administration has stood the test of time and two of them, viz., tolbutamide and chlorpropamide, have already been established as effective agents after being tried for over a decade. Newer products are, however, still being discovered as primary or secondary drug resistance is a distinct possibility besides the limitation in the use of these drugs in those cases only where insulin requirement is within 40 units per day.

Ro 6-4563, chemically 1-[(1 R)-2-endo hydroxy-3-endo-bornyl]-3 (P-tolylsulphonyl) urea (henceforth called the 'drug') is one of the recent additions to the group of oral antidiabetics and is still in the stage of clinical trial after pharma cological studies have been finalised. The peak activity of this new compound is higher than that of tolbutamide in experimental studies in rats and dogs and was found to reduce glucose levels in doses as low as 3 mg./kg. with a marked fall in blood glucose on repeated administration.

Reports of clinical testing have been obtained from ten different centres in which the drug was compared to a placebo, tolbutamide, glibenclamide and chlorpropamide (Rull *et al.*, 1970; Dubach *et al.*, 1970; De Salcedo *et al.*, 1970; Brusco *et al.*, 1970; Buckert and Schweda, 1971; Ewald *et al.*, 1971; Scharer and Hummler, 1971; Dubach *et al.*, 1971; Minemura, *et al.*, 1972; Fujita et al., 1972). Dubach *et al.* (*loc. cit.*) demonstrated that both in healthy subjects and in patients with maturity onset diabetes even oral application produced a sizeable increase in insulin concentration in peripheral blood along with inhibition of lipolysis. Previous administration of the 'drug' (Generic name: Glibornuride) enhanced the release of insulin induced by glucose or test meals given orally. The tolerance was found to be satisfactory though occasional untoward effects of nausea, dirrhoea, vomiting or anorexia were recorded.

MATERIAL AND METHOD

The patients, invited to co-operate in this study, were all proven cases of diabetes mellitus but not controlled on diet or oral hvpoglycaemic agents. Fifty patients of maturity onset diabetes mellitus were chosen and 41 cases were followed up for a period of 6 months and 9 cases were followed up for a year for assessing the tolerability and efficacy of this 'drug'. The pretreatment investigations included a full clinical examination, weight (kg.), height (cm.), examination of urine for sugar and acetone and estimation of fasting and postprandial blood sugar (3 hours after lunch). Blood sugar estimation was done initially at weekly intervals, then at 2 weekly intervals and later on once a month. In cases observed for a year after the initial 6 months' therapy the blood sugar estimation was done every month or at intervals of 6 weeks.

In addition to the above investigations, estimation of haemoglobin, total RBC and WBC count, platelet count, ESR, serum bilirubin, alkaline phosphatase, SGPT, blood urea level, etc., were done prior to treatment, during the treatment and at the end of treatment for detection of hepatotoxic and nephrotoxic action, if any, and also for blood dyscrasia during the therapy.

At the start of treatment all patients were allocated a diet suitable for their sex, size and build (Table 1).

Table 1—*Showing Calories and Diet Before Starting Treatment*

Calories	Carbohydrate (g.)	No. of patients
1200	120	7
1500	150	18
1800	180	25

They were given a supply of 25 mg. of the 'drug' in tablet form. The total daily dose of the

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drug was administered before breakfast except in some cases where the drug was given in divided doses when more than 50 mg. of the 'drug' was necessary and also in those who were being treated with other hypoglycaemic agents as shown in Table 2.

Table 2—*Showing Last Dose Range of the 'Drug' in the Total Study Group (50 Patients) and Those on Previous Treatment with Other Hypoglycaemic Agents*

Drug	Insulin + others	Sulphonylurea alone	Phenformin alone	Diet
Less than 25 mg.	—	—	—	—
25 mg.	2	26	2	—
37.5 mg.	3	10	1	1
50 mg.	1	1	—	—
More than 50 mg.	3	—	—	—
Total	9	37	3	1

Eight patients were treated as both outdoor and indoor cases of the hospital and the rest were treated in the outdoor only.

OBSERVATIONS AND DISCUSSION

Fifty maturity onset diabetics were subjected to therapeutic trial with the new 'drug' during the year 1972. The group consisted of 32 non-obese subjects, 5 overweight and 13 underweight individuals as per Broca's Index (standard weight in kg. = (height in cm.—100) ± 10) (Sahgal and Ahuja, 1971).

Twenty-six patients were more than 50 years of age and 24 were below 50 years. The mean duration of diabetes before the onset of therapy was 5 years. Forty-three (86 per cent) patients were suffering from uncomplicated diabetes mellitus and the rest were associated with complications. Before the 'drug' therapy, 37 (74 per cent) cases were on other sulphonylurea derivatives only, 3 (6 per cent) cases were on phenformin alone and 9 (18 per cent) cases were on insulin therapy whereas only one (2 per cent) case was on diet therapy alone (Table 3).

Table 3—*Showing the Incidence of Sex and Previous Treatment (50 Patients) Before Starting the 'Drug'*

Treatment	Men	Women	Total
Diet only	1	—	1
Sulphonylurea	27	10	37
Phenformin	2	1	3
Insulin + others	6	3	9
Total	36	14	50

Various parameters have been put forward to come to a decision as to whether a diabetic subject exhibited a 'good' or 'fair' response to sulphonylurea derivatives. Marble (1964) has given fairly stringent criteria to assess the diabetic state of an individual:

a) For control to be considered 'good'—the majority of the blood glucose values should be 110 mg. per 100 ml. of blood or lower than that after 3 hours or more of ingestion of food with no sugar in the urine. (b) To be considered 'fair', the blood glucose values should be about 130 mg. per 100 ml. of blood and little or no sugar should be excreted in the urine. (c) All other results should be considered as 'poor' response.

Following this parameter we have found in our series that 36 (72 per cent) cases showed a 'good' response and 9 (18 per cent) cases showed a 'fair' response whereas 5 (10 per cent) showed 'poor' response whereas Fujita *et al.* (*loc. cit.*) studied 53 patients of maturity onset diabetes with Ro 6-4563 and in their series overall effective rate was 79.2 per cent.

In the present study we tried to change 6 cases of insulin resistant maturity onset diabetes mellitus to the new 'drug'. It was possible for us to ameliorate the metabolic state of 4 of them who showed 'fair' response when insulin was supplemented with the 'drug'. Two patients could not be brought to euglycaemic state. Thirty-six of the 50 patients reported an increased sense of well-being during the 'drug' therapy and expressed their preference to continue with the same regime at the end of treatment.

The minimum time required to become euglycaemic was 6-8 weeks on an average and the minimum dosage of Ro 6-4563 was 25 mg. daily and the same dosage was preferred by Fujita *et al.* (*loc. cit.*). In 3 cases, more than 50 mg. of the 'drug' could not control the diabetes.

The mean blood sugar (3 hours after meal) level of the entire group (50 cases) at the onset of therapy was 223 mg. per cent, in the midst (at the end of 12 weeks) of study was 139 mg. per cent and at the end of study (24 weeks) it was 125 mg. per cent.

Scharer *et al.* (*loc. cit.*) did a comparative study of the toxicity of different sulphonylurea compound with glibenclamide, glibornuride in mice, rats, dogs and noticed that glibenclamide and glibornuride are much less toxic than other compounds. Side effects were seen in 12 (24 per cent) cases in the form of either nausea or skin eruption but there was no case of hypoglycaemia. The side effects occurred after a period of approximately 4 weeks. Withdrawal of the 'drug' was not necessary in any of the cases due to side effects during the present study. Mostly, cases which were selected for long term therapy showed side effects.

Most of the patients were non-obese and carbohydrate restriction as assessed according to height and body weight of the patients during their first visit to the clinic was not changed. No significant weight change was, however, noticed during the study, but 7 underweight individuals gained weight after the therapy. It was, however, rather disappointing that despite considerable attention to diet, obese individuals did not lose their weight considerably.

De Salcedo *et al.* (*loc. cit.*), Minemura *et al.* (*loc. cit.*), Fujita *et al.* (*loc. cit.*) observed no significant change in routine liver function or renal function tests and hematological analysis during and after the 'drug' therapy. Similar results were observed in our series too.

SUMMARY

The studies carried out with the 'drug' (chemically a sulphonylurea derivative) revealed a greater effect with comparitively lower therapeutic dosage of the drug. 25 mg. of the 'drug' is stated to be equivalent to 1000 mg. of tolbutamide or 250 mg. of chlorpropamide or 5 mg. of glibenclamide. The pharmacological action of the 'drug' is to increase the insulin concentration in a measurable amount in the peripheral blood as well as to inhibit lipolysis. In view of the potentiality of the new 'drug,' it was administered to 50 cases of maturity onset diabetes mellitus attending our hospital during the year 1972 and the trial continued for a minimum period of 6 months.

Side effects were rarely noticed during this therapy except in a few long term therapy cases where they were in the form of either nausea or skin eruption.

Furthermore, this 'drug' is useful in reducing the dose of insulin in maturity onset diabetics needing high dosage of insulin daily or in insulin resistant cases.

In our series there were 6 cases, where the insulin requirement was high, showed good results when the 'drug' was added to the treatment and insulin requirements were found to be lessened.

ACKNOWLEDGMENT

We are grateful to Messrs Roche Products Ltd. for supplying us with clinical data sheet and the 'drug' Ro 6-4563 'Glutril' (Roche) brand of sulphonylurea for carrying out the present observations. We are also indebted to Swami Gahanananda, Secretary, Ramakrishna Mission Seva Pratisthan for permitting us to utilise the laboratory facilities of the hospital and the hospital records.

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PRACTITIONERS' SERIES

Outbreaks of Paralytic Disease in West Bengal due to Tricresyl Phosphate Poisoning

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During the last 15 years, three outbreaks of paralytic disease in different parts of West Bengal were proved to have been caused by

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ingestion of food contaminated by tricresyl phosphate (TCP). The disease pattern was similar in the three instances although the details of epidemiology varied. It is worth discussing the similarities and dissimilarities of the three outbreaks as well as the chemical nature of the poison involved. In all the outbreaks, viral aetiology was suspected in the beginning.

OUTBREAKS

THE FIRST OUTBREAK:

During the period April-June, 1962, more than 400 cases of paralysis occurred among villagers residing in a few limited localities in three police station of Malda District. The disease was at first baffling and caused a good deal of sensation in the newspapers which described it as a 'mystery disease'. The outbreak was unique in feature that the contaminated food-stuff was soiled bags of imported *maida* or flour, contaminated by TCP, while in transit. *Chapaties*, *puris* or other fried or unfried food-stuff, made out of this flour, after being consumed produced the symptoms. Even the animals, specially the fowls who took this flour in their food were affected.

Examination- The clinical picture was characterised by pain in the calf muscles, followed by symmetrical muscular weakness or paralysis of the lower and subsequently of the upper extremities involving mainly the distal group of muscles. The extensors and intrinsic muscles of the feet and hands were often wasted enough to give rise eventually to bilateral foot drop and sometimes claw hand. The ankle jerks were invariably lost, while the plantar response was absent or indefinite. The knee jerks were usually present and so also the deep reflexes of upper extremities. There was no affection of the cranial nerves or of higher functions. Headache and fever were not a feature. All the superficial and deep sensations were usually normal except some calf tenderness. There were no sphincteric disturbances. The gait was apt to be unsteady and the patients often walked with high steppage 'paddling gait' with or without sticks.

Investigations—Lumbar puncture done in two cases did not show any abnormality. The detailed findings were given by Chaudhuri *et al.* (1962). TCP was detected in flour, flour products and left over oil frying flour products.

Course—A few were bed ridden. There had been no deaths.

THE SECOND OUTBREAK:

This outbreak occurred in February-March, 1968 in Kankinara, district 24 Parganas. It affected about 25 people. The cooking oil used by the people in the locality was bought from a grocer's shop where empty drums of TCP, used by a neighbouring factory, were used as containers of cooking oil. The left over TCP in the cans or drums caused this contamination. The family members of the grocer were also affected by the disease. The clinical picture of the cases was similar to that described in the previous outbreak (Chaudhuri *et al.*, *loc. cit.*). There was no death. The findings have been described by Chatterjea *et al.* (1968). TCP was detected in mustard oil and one sample of non-edible oil, as both were kept in empty TCP containers.

THE THIRD OUTBREAK:

This outbreak occurred in August, 1972 in areas under Dum Dum Municipality in the district of 24 Parganas as a result of consuming food cooked in contaminated mustard oil bought from a grocer's shop. More than 30 people including the family members of the grocer were affected. The clinical picture was similar to that described in the first outbreak mentioned above. It seemed that paralytic symptoms appeared about fortnight after consuming contaminated mustard oil. TCP was detected in the mustard oil, food fried in that oil and also in kerosene oil from the grocer's shop.

MANAGEMENT

The treatment of TCP neuropathy is essentially symptomatic. With physiotherapy, including active movements of the joints and encouraging the patients to be up and walking about, along with good diet, vitamins B_1 and B_{12}, it is possible to achieve considerable improvement. It takes sometimes 12 to 14 months to get full recovery although in some severe cases, permanent disability occurs (Shah *et al.*, 1960).

DISCUSSION

The first outbreak of this nature in India was reported by Shah *et al.* (*loc. cit.*) where cases occurred through contamination of edible oils, but the exact mode of contamination could not be found out. Similar outbreaks of TCP poisoning occurred in the past in various countries, one of the two biggest episodes being in United States of America where 20,000 people were affected (Burley, 1932) by consuming tincture of ginger (which was extensively used as an alcohol substitute during the prohibition era) and the other in Morocco where over 10,000 cases were reported following consumption of cooking oil adulterated with lubricating oil containing TCP (Smith and Spalding, 1957; Editorial, 1959). The concentration of TCP in the contaminated oil has been variable from 3.0 per cent in the Moroccan episode to 0.2 to 0.3 per cent in another outbreak at Durban (Sampson, 1942).

Tricresyl phosphtate, also known as tritolyl phosphate, lindol, celluflex, kronitex, and Px 917, is a mixture of three products corresponding to ortho-, meta-, and para- cresols, the molecular formula being C21 H21 O4P. It is a colourless, oily, flame-resistant liquid, b.p. 440°, insoluble in water but soluble in organic solvents and vegetable oils. This compound is commonly used as a plasticiser and is also added to certain bands of petrol and lubricating oil. Therefore, the empty cases of these chemicals should not be allowed to come out of the factories without proper cleansing.

The histopathological changes observed in the chicken, fed with TCP consisted of degenerative changes observed in the peripheral nerves and the spinal cord (Chaudhuri *et al.*, *loc. cit.*). The changes were similar to those described by Barnes and Denz (1953) in poisoning with this and similar phosphorus containing insecticides. The degenerative changes in the muscle of chickens were possibly similar to those in the nerves. Biopsy in human cases showed similar degenerative changes in the nerve and muscle.

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CASE NOTES

1

Hoffman's Syndrome

S. N. CHOWDHURI*, S. N. CHOWDHURY**

Hoffman (1897) described a condition where there was hypertrophy of muscle with hypothyroidism in adults. Since this early descriptions, this muscular hypertrophy with sluggishness of muscular contraction in adults has been termed as 'Hoffman's syndrome'. Debre and Semelaigne (1935) presented a similar disorder in cretins which is recognised as 'Kocher-Debre-Semelaigne syndrome'.

Prosad *et al.* (cited by Raju *et al.*, 1971) from Patna reported two cases of hypothyroidism associated with hypertrophy in children. In the same year Purohit and Ramamurthy (cited by Raju *et al.*, *loc. cit.*) from Guntur published a case of 'Kocher-Debre-Semelaigne syndrome'. Here we are presenting a case in adults with enormus hypertrophy of muscles with diminished power associated with typical features of myxoedema.

CASE REPORT

A Hindu, male, aged 30 years, was admitted in this hospital on 25-9-1971 with complaints of:

Weakness, lack of initiation, lethargy, swelling of whole body for 7 years, constipation for 6 years and hoarseness of voice for 5 years. All these complaints were of insidious onset.

Past, family and personal histories were noncontributory.

Physical examination—On examination, he was a young man of good height (5′ 7″), flabby and anaemic. He was lethargic, unintelligent, typical myxoedematous appearance with big pale face, flattened bridge of nose, coarse hair and scanty eyebrows, thick, big and flabby tongue, supraclavicular fossa was full and obliterated. He had a big and protuberant abdomen. His skin was coarse and dry. There was no pitting oedema in any part of the body. The most striking feature of the man was muscular hypertrophy which was more or less generalised but more marked in quadriceps, gluteal, supraspinatus and calf muscles (Fig. 1). The circumference of calf muscles was 41 cm., of thigh 52.5 cm., of forearm 26 cm. and of arm 26 cm. Measurement of both sides were almost equal, muscles were neither rigid, nor toneless, but were firm. Muscle power was not increased in pro-

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R. G. Kar Medical College and Hospitals, Calcutta

*M.D. (Cal.), Associate Professor, Department of Medicine

**M.D. (Cal.), D.T.M. & H., Visiting Physician, Bengal Immunity Therapeutic Ward ingestion of food contaminated by tricresyl phosphate (TCP). The disease pattern was similar in the three instances although the details of epidemiology varied. It is worth discussing the similarities and dissimilarities of the three outbreaks as well as the chemical nature of the poison involved. In all the outbreaks, viral aetiology was suspected in the beginning.

OUTBREAKS

THE FIRST OUTBREAK:

During the period April-June, 1962, more than 400 cases of paralysis occurred among villagers residing in a few limited localities in three police station of Malda District. The disease was at first baffling and caused a good deal of sensation in the newspapers which described it as a 'mystery disease'. The outbreak was unique in feature that the contaminated food-stuff was soiled bags of imported *maida* or flour, contaminated by TCP, while in transit. *Chapaties, puris* or other fried or unfried foodstuff, made out of this flour, after being consumed produced the symptoms. Even the animals, specially the fowls who took this flour in their food were affected.

Examination- The clinical picture was characterised by pain in the calf muscles, followed by symmetrical muscular weakness or paralysis of the lower and subsequently of the upper extremities involving mainly the distal group of muscles. The extensors and intrinsic muscles of the feet and hands were often wasted enough to give rise eventually to bilateral foot drop and sometimes claw hand. The ankle jerks were invariably lost, while the plantar response was absent or indefinite. The knee jerks were usually present and so also the deep reflexes of upper extremities. There was no affection of the cranial nerves or of higher functions. Headache and fever were not a feature. All the superficial and deep sensations were usually normal except some calf tenderness. There were no sphincteric disturbances. The gait was apt to be unsteady and the patients often walked with high steppage 'paddling gait' with or without sticks.

Investigations- Lumbar puncture done in two cases did not show any abnormality. The detailed findings were given by Chaudhuri *et al.* (1962). TCP was detected in flour, flour products and left over oil frying flour products.

Course—A few were bed ridden. There had been no deaths.

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R. G. Kar Medical College and Hospitals, Calcutta

*M.D. (Cal.), Associate Professor, Department of Medicine

**M.D. (Cal.), D.T.M. & H., Visiting Physician, Bengal Immunity Therapeutic Ward portion to the girth of the muscles rather it was less and all jerks were absent Plantar response could not be elicited probably due to thick sole There was no other neurological deficit

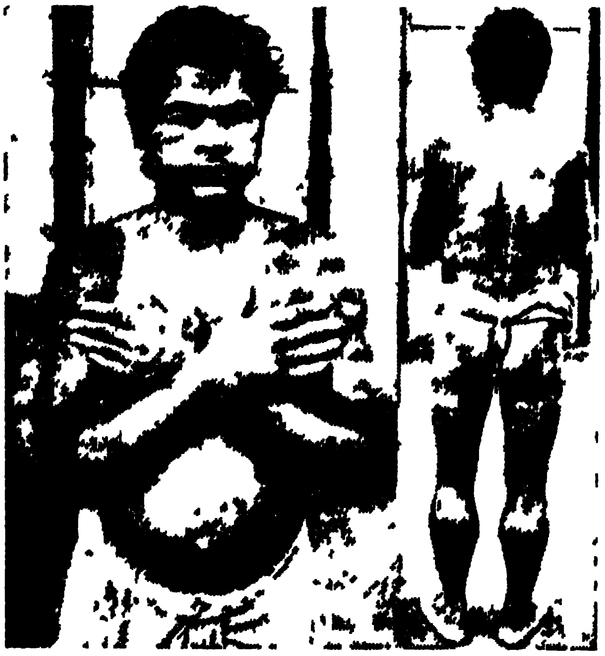

Fig 1—Showing Protuberant Abdomen with Hypertrophy of Quadriceps, Gluteal and Calf Muscles

Eyebrows specially on the outer side axillary and pubic hairs have fallen off Hairs on the scalp were sparse lustreless and coarse Skin all over the body was rough and dry Apex beat could not be palpated Heart sounds were feeble and pulse rate was 64 minute with low volume and tension BP was 120/80 mm Hg

Investigations On admission haemoglobin—8 g per cent RBC—2 9 millions/c mm WBC—8 000/c mm polymorphs—66 per cent lymphocytes—28 per cent monocytes—2 per cent eosinophils—4 per cent PCV—27 per cent MCV—93 cμ MCHC—29 6 per cent PBI—1 7 μg 100 ml serum cholesterol—223 mg per cent, creatinine—1 2 mg per cent aldolase activity—39 μl /ml /hour (normal range of serum aldolase 3-10 μl /ml /hour) and body weight was 163 lbs

Muscle biopsy from gastrocnemius showed oedematous interstitial tissue with occasional mononuclear cells, less striations and atrophy of muscle fibres at places without any evidence of fatty infiltrations

ECG showed low voltage

X-ray chest showed no abnormality

Electromyography showed minimal myopathic changes in calf muscles and gluteal muscles No myotonic potential was seen Motor nerve conduction was not done Histochemical studies of the muscles were not done

Course and progress—After 1 month of thyroxine sodium therapy (0 05 mg thrice daily) the patient showed remarkable improvement of the thyroid function He became both physically and mentally alert, started taking interest in the surroundings His anaemia improved and a reduction of blood cholesterol and elevation of serum PBI occurred His muscle girth in calf muscle became 40 cm, thigh 46 cm, forearm 25 5 cm and arm 25 cm Body weight was 130 lbs Serum aldolase activity came down to 19 5 μl / ml /hour

DISCUSSION

Following varieties of muscle changes have been described in hypothyroidism (Thomasen, 1948 Perugini and Prati 1957 all cited by Walton and Wilson *loc cit*)

1) A myotonic syndrome 2) Hypertrophied muscles in adults with variable power and tone and sluggish contraction and relaxation 3) Muscular hypertrophy with reduced or increased power in infants with sporadic cretinism giving the appearance of the Infant Hercules of Debre-Semilaigne syndrome (Debre and Semilaigne *loc cit*) 4) Muscular cramps sometimes simulating classical tetany 5) Rarely, atrophic forms (Canali 1941 Rimband and Passouent 1947) These muscle changes may occur singly or in combination

In our patient who was suspected as a case of myxoedema by his bloated appearance lack of initiation, constipation falling of hairs specially of outer half of eyebrows rough skin and absent jerks and confirmed by low PBI high cholesterol low voltage ECG had associated muscular hypertrophy with raised serum aldolase activity and histological change in the muscles indicating myopathy The presence of myopathy was substantiated by EMG

According to Thomasen (1948 cited by Walton and Wilson *loc cit*) hypertrophy of muscles in hypothyroidism is not actually hypertrophy but due to oedema

Raju *et al* (*loc cit*) showed that there was increase in the phosphorylase positive fibres and diminution of stainable glycogen following thyroid therapy indicate that in some way the changes i e, hypertrophy is related with deposition of glycogen which in turn is possibly the result of diminished phosphorylase activity

Hurawitz *et al* (1970) demonstrated reduced acid maltose activity in hypothyroid myopathy

But the mechanism of muscular changes is unknown and we have no true insight up till now about the pathophysiology of muscular hypertrophy and cannot explain why some myxoedema patients develop muscle changes and others do not

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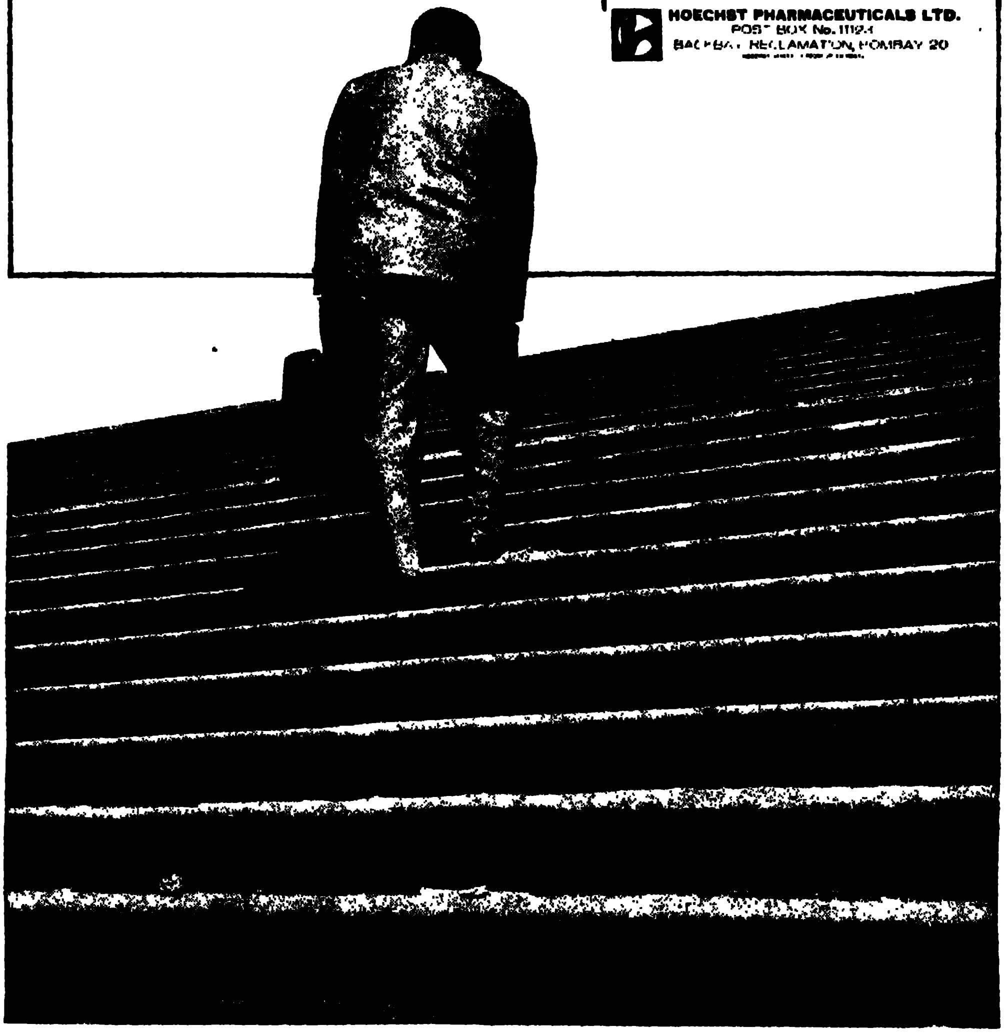

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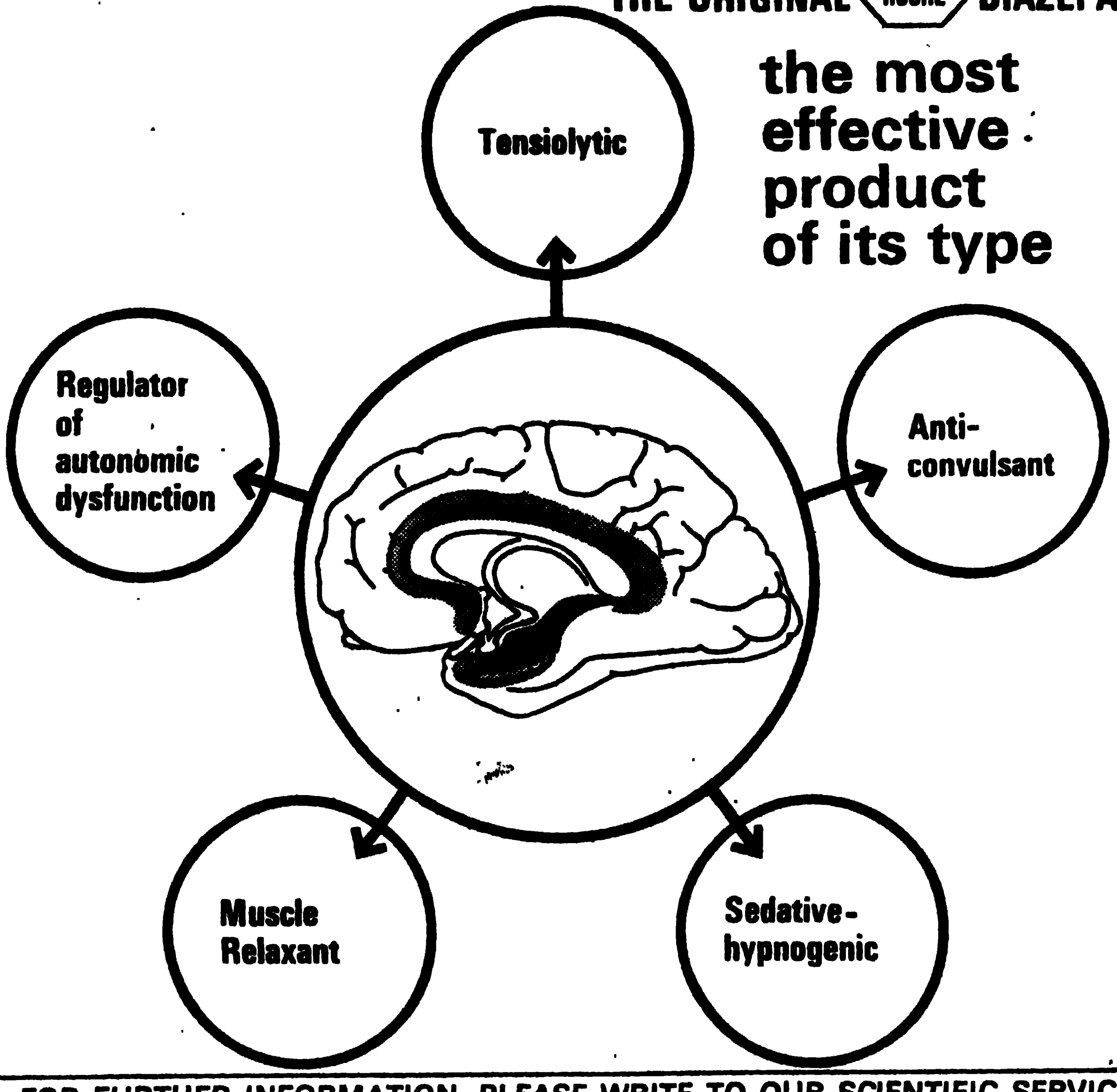

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CONCLUSION

An interesting and very rare case of myxoedema with muscular hypertrophy (a case of Hoffman's syndrome) showing myopathic changes, probably not published before from India, is reported.

ACKNOWLEDGMENT

We are grateful to Dr. B. N. Mitra, Principal-Superintendent, R. G. Kar Medical College, Calcutta, for kindly giving permission for publishing the case and to Dr. K. L. Mukherjee, Professor of Biochemistry, Institute of Child Health, Calcutta for doing necessary biochemical investigations.

Eltropin (Glaxo) brand of thyroxin sodium was used.

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2

An Uncommon Foreign Body

R. S. SETHI*, SUDESH DAVESSAR**
A. K. OHRI***, AMARJIT SINGH****
BALWANT SINGH TUNG*****

Cleaning of the tongue as a part of the oral toilet is a practice followed by people in some parts of the world. The value of such a ritual is disputable but the real trouble arises if the tooth brush or an improvised brush, made from a fresh 10" long piece of wood (*daatan*), as is used by a large number of people in India and some other countries, is employed to clean the tongue instead of the metallic or plastic tongue cleaners. This obviously harmless manoeuvre led to the ingestion of the *daatan* or tooth brush by seven patients whose cases are presented in this paper.

CASE REPORTS

Case 1:

M.S., aged 33 years, was admitted in the medical ward on 29-6-1965 with complaints of cough with expectoration of 7 days' duration. There was associated continuous types of high temperature accompanied with chills and rigors. The expectoration which was more on lying down was odourless and whitish in colour. On examination, the chest was symmetrical with central trachea and equal vocal fremitus on both sides. Percussion note was dull on the left base. There were diffuse crepitations on the left side of the chest, more marked over the left base where they were coarse. Diffuse rhonchi and scattered crepitations could also be heard on the right side.

Investigations—Haemoglobin—12.4 g. per cent, total leucocyte count—1,18,000/c.mm. with polymorphs—74 per cent, lymphocytes—25 per cent, monocytes—nil, and eosinophils—1 per cent, BSR was 40 mm. by 1st hour reading, STS was negative. Sputum on culture yielded staphylococcus coagulase which was sensitive to all the antibiotics except penicillin. Plain x-ray chest showed consolidation of left lobe with evidence of breaking down (Fig. 1).

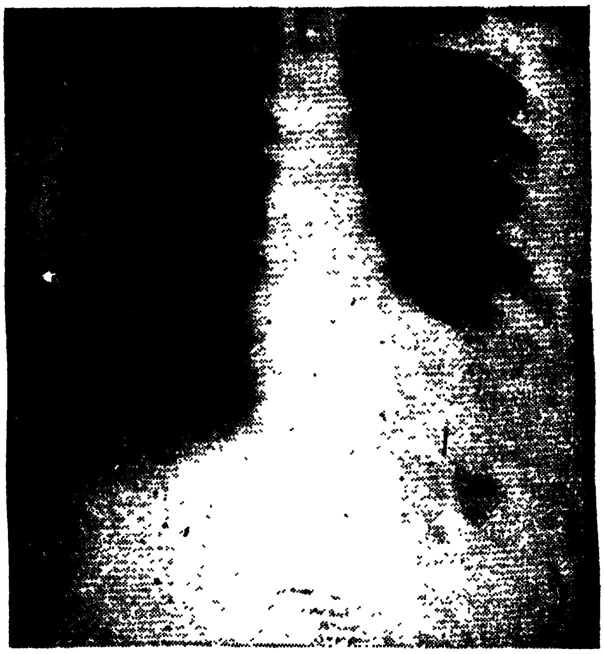

Fig. 1—Showing X-ray Chest with Consolidation of Left Lower Zone

Management—The patient was put on oxytetracycline and expectorants supplemented with vitamin B-complex and aminophylline. Postural drainage was done twice a day. The temperature came down to normal but the cough and expectoration persisted. He was admitted in the surgical ward on 31-7-1965 as a case of lung abscess. He was expectorating

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**M.S., Senior Lecturer
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*****M.S., Professor

cups of foul smelling material in 24 hours at that time. Pitting oedema was present over both the ankles and clubbing of the fingers was marked. There was tenderness over the left lower chest. Vocal fremitus was absent and air entry was diminished over the left lower base. Bronchoscopy was performed on 1-8-1965. A foreign body was seen lodged in the lumen of the left main bronchus and was removed with a foreign body forceps. The foreign body was found to be 8" long piece of wood (*daatan*). The patient made a rapid recovery and symptoms completely disappeared after the removal of the foreign body.

When questioned about the piece of wood he volunteered the information that a day before he was taken ill, he had accidentally swallowed a piece of wood while brushing his teeth with it. He did not attach any importance to this episode and therefore did not connect it with the present illness.

Case 2:

G. S., 36 years of age, was admitted in the surgical ward of V. J. Hospital on 25-7-1965 with a history of accidental swallowing of 8" long piece of wood (*daatan*) 22 days back. He was brushing his teeth when he had a bout of spasmodic cough and the piece of wood went inside before he could do anything. This could be felt in the epigastrium when the patient was on empty stomach.

Plain x-ray abdomen showed a linear shadow of a foreign body in the epigastrium and was confirmed by barium meal where it caused a filling defect in the stomach.

Gastrostomy was performed on 26-7-1965 and the foreign body was removed. The patient made an uneventful recovery and was discharged on 1-8-1965.

Case 3:

A. S., aged 45 years, was admitted in the surgical ward on 21-9-1967 with a history of ingestion of a tooth brush in the morning while brushing his teeth. He tried to bring out sputum by rubbing the posterior portion of the tongue when a sudden bout of coughing resulted in aspiration of the brush. He had a feeling of a foreign body in the epigastrium and no other complaint. Plain x-ray abdomen showed the tooth brush lying against the L_2 tnd L_3 vertebrae but was more clearly visualised after a barium meal.

Brush was taken out from the stomach through a gastrostomy and the patient made an uneventful recovery. He was discharged on 1-10-1967.

Case 4:

M. L., a 55-year old male, was admitted on 3-5-1960 as an emergency after he had aspirated a tooth brush in the morning. He did not seem to have any complaint at that time. The presence of the foreign body was confirmed by plain x-ray and barium meal examination.

The tooth brush was extracted from stomach on 4-5-1960, through a gastrostomy. The patient had a smooth postoperative period and was discharged cured on 18-5-1960.

Case 5:

D. S., aged 70 years, was admitted in the hospital on 1-7-1967 with complaints of pain in the epigastrium which followed the accidental swallowing of a wooden *daatan* six days back. There was partial dysphagia. Plain x-ray chest revealed emphysematous lung on the right side. Barium meal swallow showed the shadow of a long foreign body in the lower part of the oesophagus, the distal end lying in the stomach.

Management—The foreign body which turned out to be a 14" long *daatan* was removed through a large sized oesophagoscope.

The patient developed marked respiratory distress on the day after the removal of the foreign body. Chest auscultation revealed no air entry in the right lower lobe. A plain skiagram showed pneumonitis on the left side and pneumothorax on the right side which responded well to oxygen inhalation and tetracycline hydrochloride.

Case 6:

S. S., aged 32 years, was admitted on 2-2-1968 with complaints of pain in abdomen for the last six days. He gave the history of accidentally swallowing a 10" long *daatan* while attempting to clean his throat with it 12 days back. On examination, he was found having a firm swelling just above the costal margin, a little to the left of the xiphoid cartilage. The patient was on full stomach and plain x-ray followed by barium meal examination did not reveal anything. Barium meal study, carried out next day, showed a barium coated shadow of the *daatan* in the stomach.

Management—Gastrostomy was performed on 4-2-1968 and the *daatan* was found to be perforating the anterior wall of the stomach and tenting the skin to the left of the xiphoid cartilage. Adhesions preventing the spillage from the stomach were present between it and the parietal peritoneum all around the perforation. Except for the copius expectoration, which according to the patient was present even before this mishap, the postoperative period was uneventful and the patient was discharged and referred to the physician for his lung ailment.

Case 7:

S. S., aged 35 years, was admitted in V. J. Hospital on 28-7-1973 with signs of generalised peritonitis. He gave history of accidentally swallowing a *daatan* while brushing his teeth 14 days back. On examination, abdomen was board like in rigidity. Plain x-ray abdomen showed multiple air and fluid levels (Fig. 2).

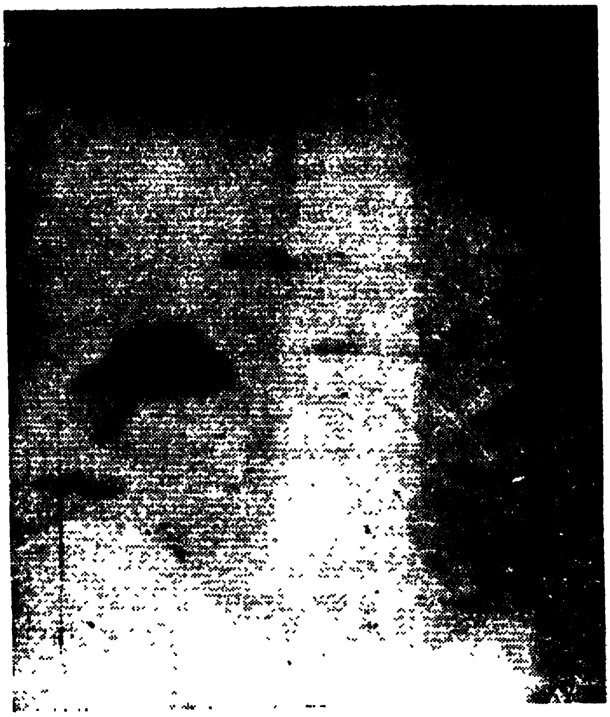

Fig. 2—Showing Straight X-ray of the Abdomen with Multiple Fluid Levels

Management—An emergency laparotomy was performed. The coils of small intestine were jumbled up with exudate and peritoneal cavity contained large quantity of pus. The anterior wall of the stomach was perforated and tip of *daatan* was seen projecting out. The foreign body was removed and perforation was stitched with interrupted chromicised catgut sutures. The suture line was reinforced by stitching up omentum over it. Peritoneal cavity was lavaged and the wound closed in layers. Patient made an uneventful recovery.

He was re-admitted after 3 days of discharge from the hospital with signs of intestinal obstruction but responded to conservative management and was discharged cured.

DISCUSSION

All of us have patients who would make terrible fuss over swallowing a small tablet or a powder, passage of Ryle's tube at times poses an insurmountable problem and, there are still others who would swallow or inhale a 10″ long piece of wood of ½″ in diameter or an adult tooth brush (Fig. 3) and then forget about it, leaving for the specialist all the headache to find out the root cause of sequelae resulting from the prolonged presence of such big foreign bodies in the gastro-intestinal tract or tracheobronchial tree. The analogy is flattering in the light of the clinical data which ascribes acute respiratory distress and cardiac arrest produced by small foreign bodies inhaled in the trachea (Shin and Yacoubian, 1966). Foreign bodies ressurect a clinical exercise

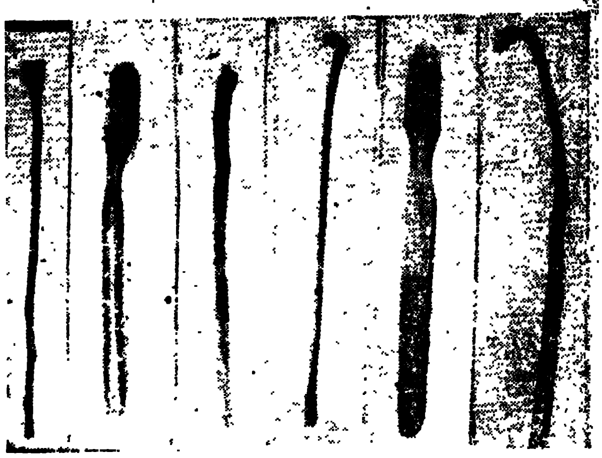

Fig. 3—Showing the Different Foreign Bodies Remov
from the Stomach and Trachea

because of their failure to produce symptoms seve
enough to engrave the memory and are forgott
with the passage of time, till their prolonged sojour
causes vague complaints or symptoms simulati
some more common malady which is diagnosed an
treated, till in sheer desperation surgery or endo
copy brings to light the offender. Bronchoscopy ma
be abortive because some of these foreign bodies
vegetable nature produce mucosal inflammation an
resultant bronchiectasis (Shin and Yacoubian, *loc. cit*

The geographical preponderance of a particul
type of foreign body is well known. Chindama
(1964), while analysing their cases of foreign bodi
in the lower respiratory tract, came across quite
few cases of betel nut ingestion. This accrues fro
the custom of offering betel nuts to children an
adults alike in Hyderabad and other places in Indi

In all the cases presented here, although the use
which this foreign body was put to was the sam
one of them found its place in the trachea while th
rest were ultimately lodged in the stomach. Th
presenting clinical picture of the secondary patholog
cal changes, superadded to the long standing intr
bronchial and intragastric foreign bodies, lead th
physician into a blind alley where the history
ingestion of foreign body is not forthcoming and
amount of antibiotics help to cure barring, of cours
a transitory relief of symptoms in some cases. Th
patient walks in and out of hospital and becomes
sore in the neck of the treating physician. Linto
(1957) reported a case with a rabbit vertebra lyi
in the right lower lobe bronchus which was on
seen when the bronchus was incised and the forei
body was taken out. This patient was under trea
ment for over two years before the impacted obje
was seen after repeated bronchoscopies. The tim
from the ingestion of the foreign body to its remova
in the longest reported instance, was assessed as
years (Linton, *loc. cit.*).

Some of these foreign bodies could lie silently in the stomach or cause vague complaints of partial dysphagia or pain in the epigastrium. In the sixth case, one end of the *daatan* perforated the anterior wall of the stomach and came to lie below, the skin, but the perforation caused by pressure necrosis was gradual and the time was not short for the favourable adhesions to form between the stomach and the parietal peritoneum, thus preventing the soilage of the peritoneal cavity and inevitable generalised peritonitis.

SUMMARY

Seven cases of uncommon foreign bodies in the stomach and trachea are presented.

The vague symptomatology following their prolonged stay is discussed.

ACKNOWLEDGMENT

Terramycin (Pfizer) brand of oxytetracycline was used.

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3

von Recklinghausen's Disease Presenting as the Neurofibrosarcoma of the Female Breast

S. P. JAIN*

von Recklinghausen's disease is well known and its proneness to sarcomatous changes has long been recognised but there is paucity of report on neurofibrosarcoma of the breast occurring in von Recklinghausen's disease. A case of neurofibrosarcoma of right breast in von Recklinghausen's disease in an Ethiopian female is reported.

CASE REPORT

A. A., Ethiopian female, 40 years of age, was admitted at the Haile Sellassie I University Hospital, Gondar, on 20-10-1972 with history of a progressively increasing painful mass in the right breast of two years' duration, which recently started growing very rapidly three months prior to admission. Ulceration with fungation of the mass associated with foul smelling discharge and bleeding occurred for two weeks. She also complained of loss of weight, loss of appetite, insomnia, weakness and fever.

She stated that she has had these swellings on her body since childhood for which she had never bothered as they were painless and were not increasing in size appreciably. She denied any relationship of her fungating breast tumour with any previous nodule on the right side of her chest, as were present in other parts of her body. There was no history of any injury or operation on her right breast. At the same time, there was no history of similar disease or neurofibromatosis and patchy pigmentations in any other near relatives in her family.

Physical examination—On examination, there was a huge, nodular, round and firm mass involving the whole of the right breast, 20 cm. × 17 cm. × 14 cm. in size, causing it to hang down over the right costal margin (Fig. 1). There was a malignant fungating ulcer 6 cm. × 6 cm. × 4 cm. deep on the anterolateral surface of the enlarged breast, covered with blood and having foul smelling bloodstained discharge. The nipple and areola were not involved in the growth. Breast along with the tumour was moveable over the pectoral fascia. Regional lymph nodes were not palpable.

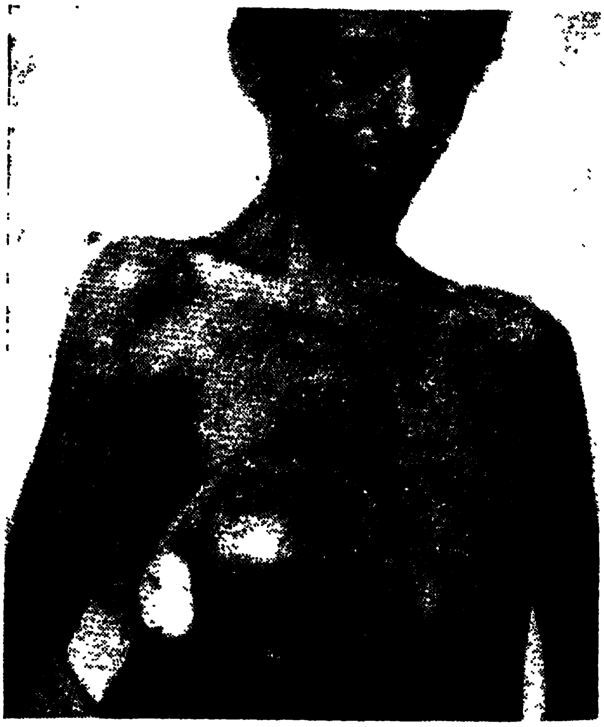

Fig. 1—Showing Neurofibrosarcoma of Right Breast with Fungating Ulcer Complicating von Reclinghausen's Disease

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Public Health College, Haile Sellassie I University, Gondar, Ethiopia

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General examination revealed slight anaemia, emaciation and multiple soft nodular swelling.

Investigations—All her systems including the skiagrams of the chest and bones showed no abnormality. Blood examination showed total WBC—7,700/c.mm. with polymorphs—65 per cent, lymphocytes—30 per cent, eosinophils—4 per cent and monocytes—1 per cent. ESR—67 mm./hour, PCV—35 per cent, blood group—"O" Rh positive; stool showed ova of *Ascaris lumbricoides*—20 per slide which is a common finding in most of the patients admitted for any reason, in this hospital.

Surgery—After controlling the secondary infection in the fungating malignant ulcer of the right breast with antibiotics and local dressings, operation of simple mastectomy was performed on 30-10-1972, under the belief that it might be a case of sarcomatous change in one of the neurofibroma in the substance of the breast, of which the patient had no knowledge and the whole of the breast with the tumour was sent for biopsy.

The mastectomy incision healed satisfactorily and she was discharged from the hospital on 11-11-1972.

Pathology—Gross specimen consisted of a huge nodular firm breast with a fungating ulcer, the specimen measuring 20 cm. × 17 cm. × 14 cm. and the ulcer which was greyish and pinkish, measuring 5 cm. × 4.5 cm. × 3 cm. The cut surface showed multiple nodular areas which were pearly white with pinkish spots and velvety appearance. Microscopic examination showed a tumour made up of pleomorphic, hyperchromatic and mitotically active round, oval and spindle cells, forming sheets of interlacing bundles and nests separated by loose and oedematous stroma in some areas giving a 'lacy' appearance. The tumour ulcerated through the skin in one area. The surrounding breast tissue shows marked collagenisation of the stroma. Histological diagnosis: Neurofibrosarcoma of the breast in von Recklinghausen's disease.

Follow-up—She is keeping well for more than one year and there has been no local recurrence or metastasis of neurofibrosarcoma.

DISCUSSION

von Recklinghausen's disease is characterised by generalised neurofibromatosis of familial origin due to an autosomal dominant gene. There are a large number of tumours, sometimes hundreds of them, growing from the fine cutaneous nerves, forming soft nodules in the skin and usually distributed over the entire body. They vary in size from a pin head to a plum or larger and may be sessile or pedunculated. They may affect any of the cerebrospinal nerves, sympathetic nerves and also the nerve fibres within the muscles, bones and viscera.

There may be myxomatous or jelly-like hyaline degenerative changes. Nerve fibres can be seen passing through the mass by special stains and there is neither proliferation of the nerve fibres nor degeneration. According to Illingworth and Dick (1968), the only change the nerve fibres undergo is compression and elongation and therefore no sensory or motor changes are observed.

Skin pigmentation may occur in patches before tumour formation is noticed. Though the disease is of congenital origin as a Mendelian dominant, the tumours do not usually grow to a recognisable or disturbing size till young adulthood.

There is predisposition to malignant transformation in some of them, specially if they are exposed to trauma or incomplete excision. Malignant change occurs at a younger age in the female, probably due to hormonal factors. Malignant characters are usually seen in neurofibromata affecting recognisable peripheral nerves in the arm and leg, the commonest location being the thigh and they form single, slowly growing, infiltrating tumours in the subcutaneous and intermuscular tissues. More rarely, they may occur in the viscera.

The proneness of the lesions of neurofibromatosis to sarcomatous change has long been recognised. One of the earliest reports (Willis, 1967) was that of Coupland and Balding in 1877, who, in a patient with multiple subcutaneous fibromas, saw a myxosarcoma of the sciatic nerve with pleural and mediastinal metastases. Willis (*loc. cit.*) reported the case of a female, aged 47 years, having hundreds of small sessile tumours in the skin of trunk and limbs since childhood, who on necropsy showed a retroperitoneal spindle-cell fibrosarcoma.

There is no report in the literature of any case of neurofibrosarcoma of the breast occurring in von Recklinghausen's disease as in the above Ethiopian woman. This patient must have had an asymptomatic neurofibroma in the substance of her right breast, which subsequently developed malignant changes of sarcoma when she was only about 38 years of age.

This case illustrates that if a female patient suffering from von Recklinghausen's disease has got neurofibroma in any of her breast, it will be essential to consider a wide surgical excision of such a tumour mass and biopsy investigation in view of the proneness of such neurofibromata to sarcomatous changes, probably under hormonal influence in the female sex.

SUMMARY

A case of neurofibrosarcoma of the right breast in von Recklinghausen's disease in an Ethiopian female, aged 40 years, treated by simple mastectomy and confirmed by biopsy, is presented. The patient is free

from recurrence and metastasis for more than one year.

ACKNOWLEDGMENT

I wish to thank Dr. Irwin Samuel, Professor of Clinical Pathology, Haile Sellassie I University, Addis Ababa, for the histopathological examination report of the specimen after mastectomy.

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4

Blue Rubber Bleb Naevus Syndrome

M. N. ANSARI*, S. M. ASHRAF**
(MRS.) A. A. KHAN***, S. M. RAZA****

Gascoyen (1960) reported the first case of blue rubber bleb naevus syndrome. The patient died of suffocation from parotid haemangioma. At autopsy, skin, hepatic and intestinal lesions were found. Bean (1958) gave the syndrome its name. Baker *et al.* (1971) reviewed the literature and collected 19 cases including their own case report.

CASE REPORT

M.A., a 17-year-old boy was admitted in the Surgical Ward on 8-1-1971 with complaints of small bluish painless skin swellings on various parts of the body since childhood, with gradual increase in the sizes of the swellings for 2-3 years. He also complained of bleeding from a pea sized swelling on the inner aspect of thigh, precipitated by slight trauma for preceding two years. There was progressive generalised weakness and breathlessness on exertion for one year and blood mixed with stool was passed off and on for the same duration.

He gave a history of passage of roundworms and threadworms in stool. Family history revealed that his paternal grandmother suffered from similar skin swellings, but had no other trouble.

On examination, the boy was of thin build, with poor nutrition and severe anaemia. Pulse and BP were within normal limits and no signs of cardiac failure were present. Examination of the heart revealed only haemic murmurs. The liver was palpable two fingers below the costal margin, smooth and soft. The spleen was just palpable.

He had several skin haemangiomas on various parts of the body ranging from 1 mm. to 2.4 cm. in dimension. All of these were smooth, reducible, non-tender and confined to the skin. One haemangioma, ½ cm. in diameter, was present on the posterior third of the right side of the tongue. Rectal examination and proctoscopy revealed a haemangiomatous polyp of about ½ cm. in diameter in the rectum.

Investigations—The blood examination showed that the haemoglobin was only 3.5 g. per cent, total RBC one million/c.mm., totol WBC 5000/c.mm. with polymorphs 49 per cent, lymphocytes 49 per cent and eosinophils 2 per cent. General blood picture revealed microcytic hypochromic anaemia with RBC showing marked degree of anisocytosis and poikilocytosis. Platelets were adequate and ESR was 15 mm. in the first hour (Westergren).

Repeated stool examination failed to reveal any evidence of worm infestation. Occult blood was positive in stools. Plain skiagram of abdomen, barium meal follow through and barium enema and x-ray of long bones did not reveal any pathology. Sigmoidoscopy up to 25 cm. revealed only a haemangiomatous polyp in the rectum.

Histology—The skin lesion shows large vascular spaces lined by a single layer of endothelium separated by thin bands of connective tissue (Fig. 1, H. & E. × 400).

Management—After building him up with haematinics and blood transfusions, the rectal polyp was excised. Histopathology showed it to be cavernous haemangioma. Meanwhile, occult blood in stools disappeared. Patient was then discharged on 5-2-1972. He was re-admitted after a few days with complaints of bleeding per rectum and weakness. His haemoglobin had fallen to 4 g. per cent. Now a diagnosis of multiple haemangiomatous malformations of skin and gastro-intestinal tract (blue rubber bleb naevus disease) was made and it was decided to explore his abdomen. Exploratory laparotomy was carried out on 16-3-1972. Twelve haemangiomatous masses ranging from 0.5 to 1.5 cm. were found spreading through the jejunum and ileum (Fig. 2). Mesenteric lymph nodes were found to be enlarged. Three loops of bowel, each containing three tumours, were resected. Three isolated tumours were also resected and continuity of bowel was restored. The patient developed paralytic ileus postoperatively but resumed normal bowel functions on 7th postoperative day. He was discharged on 29-3-1972 without any complaints. He comes for check up regularly. There is considerable improve-

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ment in his general condition. There is no rectal bleeding and stool is negative for occult blood.

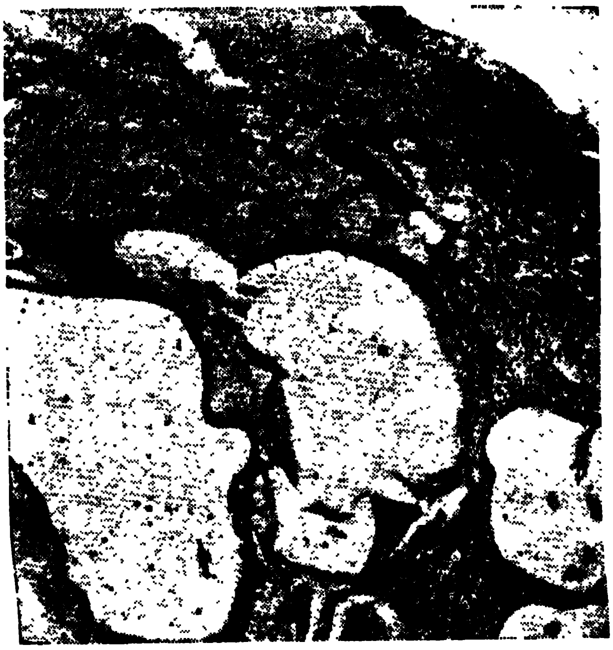

Fig. 1—Showing Large Vascular Spaces Lined by a Single Layer of Endothelium Separated by Thin Bands of Connective Tissue

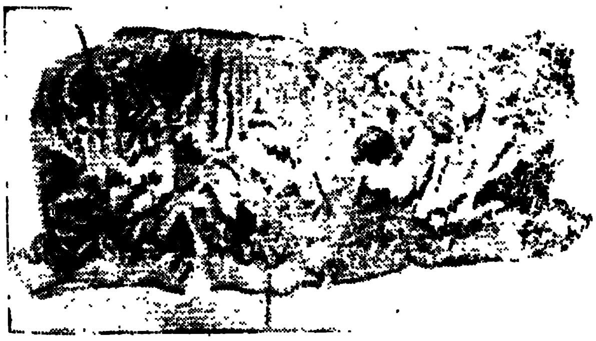

Fig. 2—Showing One of the Resected Ileal Loops with Multiple Lesions

DISCUSSION

In this syndrome there is an association between naevi that look like blue rubber bleb and vascular lesions of the gastro-intestinal tract. Skin lesions may be either single or multiple, up to 300 have been reported (Rice and Fischer, 1962). The size may vary from 0.1 cm. to 4.0 cm. The lesions are blue and raised and the surface is wrinkled. The swellings are partially reducible and fill gradually after emptying. The number of naevi may increase due to the appearance of new ones (Walshe *et al.*, 1966). Berlyne and Berlyne (1960) reported 13 cases in one family who had skin lesions. Three of them were anaemic without any apparent lesion. Naevi of gastro-intestinal tract are well known for their tendency to bleed, causing either chronic anaemia or frank bleeding. The importance of the syndrome lies in the recognition of cutaneous naevi as a hint to gastro-intestinal vascular malformations in cases of gastro-intestinal bleeding of obscure origin.

Many of these cases, despite intensive efforts, remain undiagnosed, particularly when they are small. Selective angiography has been of help in some of these cases. Nusbaum and Baum (1963) observed that bleeding must be more than 0.5 ml./minute to be recognised as a leak of contrast material into the gastro-intestinal tract. Radioisotope studies may be of some help in locating the site of bleeding.

There are several cases on whom repeated laparotomies have been performed before any lesion could be detected (Pradhan and Jaunteguy, 1972). During laparotomy, if the lesion involves all the layers it will be obvious, otherwise detectien may be difficult. Mesenteric vessels in the region of vascular naevi may be engorged (Pierose, 1940). Systematic transillumination can also help in finding the site (Calem and Jimenz, 1963). In difficult cases multiple enterostomies and their examination with the help of the sigmoidoscope help in recognising the site of lesion. Once the site is recognised resection is the treatment of choice.

SUMMARY

A case of blue rubber bleb naevus syndrome is being presented with emphasis on its recognition as a cause of gastro-intestinal bleeding.

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JOURNAL OF THE
INDIAN MEDICAL ASSOCIATION
CALCUTTA, DECEMBER 1, 1974

Fifty Not Out

In the language of Cricket, a game which just now is very much in the imagination of people of all ages and walks of life in this country, the Indian Medical Association has not failed to strike the spirit and has scored half a century in holding annual sessions of the All India Medical Conference. The Golden Jubilee is being celebrated in the last week of December, 1974 and its venue has been maintained at its birthplace, viz., Calcutta and also the place where its Silver Jubilee was held in 1949. On actual calculation, however, the Conference should have crossed the 50th mark 8 years earlier but for the gap of 8 years following the 4th session held at Nagpur in 1920.

The need of holding Conference of the members of the medical profession was felt as early as in the days of Charaka, the ancient Hindu physician, who commented that "discussion and exchange of ideas with those having similar interests ...... contributed towards the clarity of understanding, increased dialectical skill, broadcast reputation, dispelled doubts regarding things heard by repeated hearing and confirmed the ideas of those that had no doubts"[1].

Such discussion could be friendly or hostile. While the former "was encouraged with a person who possessed knowledge and experience. was easily persuaded and was an adept in the art of persuasion, had tolerance and pleasantness of speech"[1], the latter was recommended "under certain circumstances" along with "the use of a few pungent remarks against the opponent. .... In such an encounter, once an opponent has been shouted down, one should not at all engage any more in debate with him"[1].

The concept of the All India Medical Conference, however, was based on various factors intimately connected with the medical profession at the beginning of this century when the country was still under alien rule and the objects of the first Conference held in 1917 at the Carmichael (R. G. Kar) Medical College, Calcutta under the auspices of now defunct Bengal Medical Association were described by late Sir Nil Ratan Sircar, the Chairman of the Reception Committee as follows :

i) to examine closely some of the important facts of articulation of the structure of our profession with the society ;

ii) to examine also the minute anatomy of the organisation of our profession, in order to detect whether the condition is normal or it is pathological from neoplasm or microbes within or from mechanical pressure without ;

iii) to formulate ways and means for its healthy unimpeded recovery, growth and progress towards its noble ideal ; and

iv) to determine the forces that cohere its different units and thus help to focus the scattered energies of its units towards a common object"[2].

While the past history has already been related in details by the leaders of the profession on various occasions and from various platforms, the time has now come to re-orient our vision and perspective in the light of over quarter of a century of freedom that the country has already been enjoying. The first and foremost in this regard is the assessment of the performance done so far in meting out minimal health care to our countrymen and secondly the degree of success achieved in imparting medical education, under-graduate as well as post-graduate, to our own people and utilisation of their services in an adequate fashion and in keeping with the rapid advances being made globally as regards knowledge and practice of Medicine specially after the second World War.

The ideal solution of the first problem is the institution of a national health service scheme which is being hammered into the ears of the health authorities by the Indian Medical Association which has its own task force and "draft of which is under study by its branches all over the country"[3]. It has rightly been questioned

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[1] JAGGI, O. P.—Indian System of Medicine, Vol. IV, 1973, Atma Ram & Sons, Delhi, pp. 66, 67.

[2] NEELAMEGHAN, A.—Development of Medical Societies and Medical Periodicals in India 1780-1920, 1963, IASLIC, Calcutta, p. 53.

[3] Editorial—*IMA News*, 7: 1, September, 1974.

"Will the IMA's role be accepted, its policies approved and its participation in nation building ensured, in the national interest, in the Government interest and in the people's interest ?"[3]

As regards the second problem again suggestions galore have been made but they have not been worked upon by the Government in right earnest. The situation has been briefly expressed in an editorial[4] in *IMA News* as follows :

"It is unfortunate that while our country needs the services of highly educated, qualified, technical and professional persons, there are hardly any employment potentials for them. In fact, the potential for jobs corresponding to the needs of the community and befitting the qualification and experience of such technical persons has not been created. Qualified persons feel frustrated and think that, probably, their services are not required in this country. The problem to our mind is not of a brain drain but of non-utilisation of the "brain".

There is no national health policy yet defined. What type of health personnel are required and in what numbers, cannot be clear unless the extent of utilisation of the health personnel of various systems of medicine is defined. It is reported that about 2,000 doctors migrated to other countries last year. This figure is almost 20-22 per cent of the total number of doctors who qualify each year from 100 and odd medical colleges in the country. There are reported to be about 18-20 thousand such doctors who are abroad. If this be the state of affairs, why are we maintaining this extra number of colleges when their end products have to be employed as "ready made" doctors by other countries ?"[4]

Let us hope that with the festive mood around and while enjoying a merry Christmas in this city of tradition and problems the members of the Indian Medical Association would be paying due attention to the short-comings that are still in existence in plenty in respect of health administration and its paraphernalia as a whole.

A. B. MUKERJEE

CURRENT MEDICAL LITERATURE

Sudden Death in Infancy

ANDERSON, R. H., BOUTON, J., BURROW, C. T. and SMITH AUDREY (*Brit. Med. J.*, 2: 135, 1974) from the Department of Cardiology and Clinical Physiology, Wilhelmina Gasthuis, Eerste Helmerstraat 104, Amsterdam, The Netherlands, from Alder Hey Children's Hospital, Liverpool and from the Department of Pathology, Broadgreen Hospital, Liverpool, comment:

The heart from 15 cot death patients have been compared with those of 15 controls. In one of the cot death patients an accessory atrioventricular connexion known to be capable of producing ventricular pre-excitation and sudden death was identified. In all hearts examined additional segments of specialised tissue were found in relation to the atrioventricular orifices which may have been significant in producing pre-excitation. Haemorrhagic lesions were present in the atrial myocardium and conducting tissues of hearts from both groups, but no evidence was found of cellular degeneration in the atrioventricular bundle. There is a need for further studies of conducting tissues in sudden death syndromes.

Salbutamol and Premature Labour

KORDA, A. R., LYNEHAM, R. C. and JONES, W. R. (*Med. J. Aust.*, 1: 744, 1974) from the Department of Obstetrics and Gynaecology, University of Sydney, and King George V Memorial Hospital, Sydney, state:

Salbutamol, a ß-adrenergic stimulant, was administered to 57 patients who were in premature labour. The drug proved to be effective in suppressing uterine activity for a specified period of 24 hours in 94 per cent of the patients treated, excluding four patients in whom treatment was stopped because of other complications.

When the membranes were ruptured, 83 per cent of the patients had prolongation of pregnancy for 24 hours or more. Eleven patients with cervical dilatation of 3 cm. or more were treated, and only one delivered within 24 hours.

The only significant side effects noted were tachycardia and an increased pulse pressure in the mother, and a slight increase in the heart rate in the foetus.

A Urodynamic Study of Micturition

FRIMODT-MOLLER, C. (*Danish. Med. Bull.*, 21: 41, 1974) from the Department of Urology H, Gentofte Hospital, University of Copenhagen, comments:

The technique and clinical results of a urodynamic study of healthy men and women were presented. It was emphasised that analysis of bladder function should involve parameters and as (1) detrusor compliance, (2) expulsive forces, (3) urinary flow and urethral resistance, (4) continence mechanism, and (5) bladder sensibility.

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[4] Editorial—*IMA News*, 8: 1, October, 1074.

The voiding patterns of males and females were evaluated, and numerical values tabulated for comparison with values from other reports. There was a considerable variation in mean pressure-flow values in the reports studied. Some of the reasons are noted: Mechanical and calibration errors, time delay, psychological influence, differences in investigative methods, and different units of measurement. The necessity of improving electronic measures, and the importance of developing non-traumatic measuring devices, were stressed.

Ruptured Liver Abscess Complicating Pregnancy

SEN, N., SINHA, P. and BANERJEE, S. (*J. Obstet. Gynaec. India*, **24**: 409, 1974) from Eden Hospital, Medical College, Calcutta, state:

The symptoms of acute abdomen along with enlarged tender liver had initially lead to the diagnosis of hepatitis associated with pregnancy. But in spite of treatment pain was aggravated due to spreading peritonitis and since the patient became toxic, a diagnosis of gangrenous appendicitis with pregnancy leading to spreading peritonitis was made. The possibility of ruptured amoebic liver abscess especially with a past history of amoebiasis, should be borné in mind. The diagnosis was made at laparotomy by finding the typical anchovy sauce pus. The method of treatment in such a case is always surgical and by open method. Ordinarily, a liver abscess is never drained. But since the pus was secondarily infected, corrugated rubber drains were inserted. Caesarean section was not done due to low general condition of the patient. There were multiple cavities in the liver and patient died of incipient liver failure.

Folic Acid

ELSBORG, L. (*Danish Med. Bull.*, **21**: 1, 1974) from the Department of Medicine II (Haematology) and Clinical Chemistry, Aarhas Amtssygehus, observes:

The mechanism of intestinal absorption of folates is currently not clearly understood. Controversy exists on both the mode and the site of absorption of the vitamin.

This study involved *in vivo* and *in vitro* absorption experiments in rats with H-folic acid, serving as a model for intestinal absorption of folates. No evidence was found of an active process involved in the absorption of folic acid. On the contrary, all experiments were compatible with the concept of folic acid absorption as a passive process. The absorption depended on pH, and the main part of folic acid was absorbed at pH 6.0 to 7.2. Absorption maximum lay at pH 6.0. Absorption of folic acid was increased by the presence of plasma protein on the serosal side of the intestinal wall, probably caused by combination of folic acid with the plasma proteins. Different pH on the two sides of the intestinal wall may also add to folic acid absorption by a "non-ionic diffusion".

Larger values for transport of folic acid were obtained by a microbiological technique for estimation of folic acid than by the radiochemical method used in this study. This discrepancy was assumed to be caused by folates liberated from the intestinal wall during the experiments, and these folates disturb only microbiological measuring method.

Transport rate for folic acid was equal in the jejunum and the ileum. It was suggested; however, that during physiological circumstances pH may vary in different parts of the intestine causing higher absorption rate of folic acid in the jejunum than the ileum.

Disturbances of folic acid absorption hardly arises from reduction of the intestinal surface, but changes of the intraluminal pH may be responsible for malabsorption of folic acid in some diseases.

Macrocytosis of Chronic Alcoholism

WU, A., CHANARIN, I. and LEVI, A. J. (*Lancet*, **1**: 829, 1974) from Northwich Park Hospital and Clinical Research Centre, Watford Road, Harrow, Middlesex, write:

Sixty-three patients regularly drinking more than 80 g. ethanol daily were studied. Macrocytosis was present in 89 per cent, generally unassociated with anaemia. Megaloblastic changes were seen in only a third of the marrow samples and the remainder were normoblastic. Serum, red blood cell, and liver folate levels were reduced in approximately one-third of the patients. Six patients with magaloblastic changes had normal serum, red blood cell, and liver folate levels. Macrocytosis disappeared on alcohol withdrawal alone, but persisted, despite folate supplement, when alcohol intake was not curtailed. Macrocytosis is one of the commonest abnormalities in UK, and seems to be due to a direct action of alcohol on the developing erythroblasts. It is not necessarily related to folate deficiency.

Effects of Lidocaine in Patients with Intraventricular Conduction Defects

KUNKEL, F., ROWLAND, M. and SCHINMAN, M. M. (*Circulation*, **49**: 894, 1974) from the Medical Service, San Francisco General Hospital, and the Department of Medicine, University of California School of Medicine, San Francisco, California, observe:

A 6 mg./kg. lidocaine infusion was administered (over 22 minutes) to 10 patients with the electrocardiographic findings of bundle branch block. His bundle electrograms, heart rate, blood pressure, and plasma lidocaine levels were obtained before, every 5 minutes during, and 20 minutes after the infusion was terminated. Control atrioventricular nodal conduction time (AH) was prolonged in two patients

(130-175 msec.) and infranodal conduction time was abnormally prolonged in four (60-100 msec). Therapeutic lidocaine levels were achieved in all patients and peak levels ranged from 3.3-11.0 μg./ml. No significant changes in mean heart rate, blood pressure, AH, His-Purkinje conduction time, or QRS duration were noted between control values and during or after the lidocaine infusion. Toxic central nervous system side effects including somnolence, dysarthria, and euphoria were noted in five subjects. Therapeutic levels of lidocaine were effective in the eradication of premature ventricular beats and safe in the sense that no higher degrees of atrioventricular or intraventricular conduction block were found; however, mild symptoms of central nervous system toxicity were commonly observed.

"Stress" Polycythaemia and Hypertension

EMERY, A. C., WHITCOMB, W. H. and FROHLICH, E. D. (*J. Amer. Med. Ass.*, **229**: 159, 1974) from the Hypertension Division, Department of Medicine, The University of Oklahoma Health Sciences Centre, and the Medical Service, Veterans Administration Hospital, Oklahoma City, observe:

Thirteen of 478 patients whose blood volumes were measured within a two-year period demonstrated "stress" polycythaemia; each of these patients had sustained systolic or diastolic hypertension of varying severity. In five patients, antihypertensive (sympatholytic) therapy was associated with remission of the "stress" polycythaemia. One half of the patients studied in the present series, and 47 per cent of those previously reported had severe cardiovascular disease; 71 per cent of the latter patients also had arterial hypertension. These findings strongly suggest that "stress" polycythaemia should not be considered a "benign" condition meriting therapy with phlebotomy or transquilising drugs. Patients with arterial pressure elevation should be treated vigorously with close observation for control of hypertension and remission of the polycythaemia.

Subphrenic Abscess

DeCOSSE, J. J., POULIN, T. L., FOX, P. S and CONDON, R. E. (*Surg. Gynec. Obstet.*, **138**: 841, 1974) from The Division of Surgery, The Medical College of Wisconsin, Veterans Administration Hospital, Wood, Wisconsin, and Milwaukee County General Hospital, Milwaukee, write:

The severe morbidity and the mortality rates of subphrenic abscess led us to perform a retrospective analysis of 60 patients with this condition, to study the subdiaphragmatic structures in the dissecting room, and to implement a new lateral surgical approach to the subdiaphragmatic spaces. Results of our studies indicated that the risk of subphrenic abscess can be minimised by attention being given to operative detail, that subphrenic abscess can, and should, be recognised promptly by appropriate diagnostic manoeuvres, that clinical findings can reliably sort out solitary and multiple abscesses, and that a lateral extraserous approach has replaced exposure through the bed of the twelfth rib for the purpose of drainage of the subdiaphragmatic abscess.

Suicide and Depression in Childhood and Adolescence

GARFINKEL, B. D. and GOLOMBEK, H. (*Canad. Med. Ass. J.*, **110**: 1278, 1974) from the Department of Child and Adolescent Psychiatry, University of Toronto; and from the Department of Child and Adolescent Service, Clarke Institute of Psychiatry; and the Department of Psychiatry, University of Toronto, comment:

Suicide and depression in children and adolescents are reviewed. The true incidence of suicide in the paediatric population is not known because of under-reporting suicide is, however, considered as a leading cause of death in this age group. Suicide in young children often reflects an immature comprehension of the state of death, combined with a wish to alter an intolerable living situation or to punish individuals significant in his environment. At age 14 the incidence of suicide increases markedly. These acts of self-destruction reflect a development process that follows puberty. During this period the youth experiences an impoverishment of values and controls, as well as an intensification of emotions and needs, resulting in extreme disequilibrium. In the late adolescent, as in the adult, suicide occurs commonly in response to real or imagined loss. Specific guidelines are set out for the assessment and management of the depressed and suicide youth. Community and medical measures of a prophylactic nature are recommended in the belief that the rising incidence of suicide can be halted through an intensification of efforts on the part of the medical profession.

Acute Infantile Hemiplegia

KUMIN, B. S. and GEEFHUYSEN, J. (*S. Afr. Med. J.*, **48**: 1072, 1974) from the Department of Ophthalmology, Baragwanath Hospital and University of the Witwatersrand, Johannesburg and from the Department of Paediatrics, Baragwanath Hospital and University of the Witwatersrand, Johannesburg, state:

An 18-month-old patient with acute infantile hemiplegia, aphasia and ipsilateral retinal vascular occlusion, is described. The ophthalmic findings suggest that the lesion was due to emboli originating from both internal carotid arteries, probably as a result of upper respiratory tract infection and otitis media.

This report emphasises the importance of examination of the retinal vasculature in assessing the extent and pathogenesis of the intracranial lesion in acute infantile hemiplegia.

Aetiologically infantile hemiplegia can be divided into a large idiopathic group and a smaller group in which some definite predisposing cause can be found.

Although arteriography was not done in this case, occlusions in the carotid arterial system, as demonstrated by angiography, are well documented. Such lesions have also been described in association with minimal trauma to the neck, infections of the paratonsillar area and upper respiratory tract, and otitis media, pneumonia. Most of these occlusions are probably thrombotic rather than embolic. Occasionally they may be explained on the basis of a vasculitis.

Homonymous hemianopia and cortical blindness are due to involvement of the brain, while squints, and varying degrees of non-cortical amblyopia can be better explained by the direct involvement of the retinal vasculature.

The striking fundal picture of a right retinal vasculitis with a right hemiplegia suggests emboli from carotid arteries, or perhaps an ascending vasculitis.

The retinal arterial occlusion is attributed to an infected embolus, while the associated venous lesion can be explained on the basis of an infective periphlebitis or retrograde venous thrombosis. This case supports the concept of the disease being due to a vascular lesion of the internal carotid system.

An Evaluation of Five Drug Combination Chemotherapy in the Management of Recurrent Carcinoma of the Breast

LEE, J. M., ABELOFF, M. D., LENHARD, R. E. and BAKER, R. R. (*Surg. Gynec. Obstet*,. **138**: 77, 1974) from the Departments of Surgery and Medicine, The Johns Hopkins University School of Medicine, Baltimore, comment:

'Seventy thousand carcinomas of the female breast occur each year in the United States. While significant numbers of these patients are cured by surgical excision or radiotherapy, or both, at least 50 per cent eventually will have metastatic disease develop. A number of different means of treating metastatic carcinoma of the brest has been described, including radiotherapy, additive hormonal therapy, ablative hormonal therapy, and cytotoxic drugs used either alone or in combination with additive or ablative hormonal therapy.

A combination of cytotoxic drugs and corticosteroids originally was evaluated in the treatment of acute leukaemia. After success in this area, combination drug therapy was used later in the treatment of Hodgkin's disease with continued success.

Five drug combinations therapy was evaluated in 32 patients. The five drugs used were prednisone, cyclophosphamide, fluorouracil, vincristine, and methotrexate. A complete or partial remission was obtained in 15 of the patients treated, and symptomatic relief was obtained in an additional seven patients. These results were obtained with little morbidity and no deaths.

Glioblastoma Multiforme

JOHNSON, R. P. and GUILLAN, R. A. (*J. Kansas Med. Soc.*, **75**: 169, 1974) from V. A. Hospital, Topeka, comment:

A well-documented case of glioblastoma multiforme with remote extracranial metastases to lung, hilar nodes, and liver is presented.

The salient features contributing to the development of such metastatic spread, such as surgical intervention and prolonged survival time, are discussed.

The rarity of extracranial metastases with glioblastomas is still poorly understood considering that these tumours are among the most malignant encountered. Various factors have been cited by numerous authors to explain this, including the absence of cerebral lymphatics; early occlusion of venous channels by tumour compression because cerebral veins are so thin-walled; immune response to the tumour cells by other organs and short postoperative life span of these patients. However, it has now been shown that gliomas experimentally implanted at other body sites will continue to grow.

From all the previous literature, what is striking is the fact that surgical intervention is almost a prerequisite for the extracranial metastases of these tumours. Only in the cases reported by Rubinstein and Anzil was the natural course of the tumour not interrupted by surgical intervention. Also of interest is the recognition that tumour cells are definitely released into the systemic circulation during surgery. In our case, there was clear evidence of haematogenous spread as evidenced by tumour emboli within the lung. It is unlikely that this would have occurred were not previously inaccessible vascular routes from scalp and dura opened during surgery. It cannot be overlooked, however, that our patient survived nearly 24 months from the time of the initial surgical procedure, as compared to the mean postoperative survival of 18 months reported by Smith in his series, and 35 months after the onset of symptoms. This might very well have been a significant contributing factor to the development of extracranial metastases.

CURRENT TOPIC

A Look at Our Health Plans

H. N. SHIVAPURI*

It is now almost 27 years that we attained our Independence. During this period our country has gone through a lot of vicissitudes—uninvited wars with Pakistan and unreasonable and one-sided attack by China, then ideological difference with some other countries like USA. Even then we have also progressed in several fields. Industrially, commercially, scientifically and even politically we are now wiser than before. But the spheres where we have failed to make rapid strides are those of education and health. One after other four 5-Year Plans have been launched and we are now on the threshold of the Fifth Five-Year Plan. But unfortunately the two vital spheres of national development, health and education have not been given sufficient priority or attention which they deserved. Our education runs in the same old rut and has made no attempt to prepare our rising generations so as to make them fit for the tasks and responsibilities which they will have to undertake on coming out of their educational institutions, with the result that today we are witnessing evidence of their mounting dissatisfaction in various forms all over the country.

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*M.B.B.S., Ex-I.M.S., Capt., Lucknow

The picture is not very encouraging so far as our Health Plans and the progress made in that sphere are concerned. Starting with the training of our young doctors, we find no efforts for preparing them for the tasks they are expected to shoulder when they pass out of the medical colleges. One thing we have succeeded in doing is that we have opened one medical college after another often without proper buildings or equipment and without any control on the standard of training. Students are admitted sometimes not by dozens but by hundreds, with the result that the teacher and the taught both hardly know each other and in this mass training, no individual attention can be paid. In consequence the students come out of the college attaining very little clinical acumen Very few of them learn something about our own Indian Pharmacopoeia and I doubt if any of them they have even heard the name of the book called "National Formulary". Thus it is no wonder that many of them cannot write even a simple prescription like that of carminative mixture or a cough mixture. They hardly know the incompatibles and find it easier to use patent drugs. The result is that they are not suitably oriented to work in rural areas where the medical aid is badly needed and they all collect in a few bigger towns The fault lies not so much with the student, but with the teacher, I should say, who takes very little interest in such large classes—one reason being that he is busy with his private practice and spends the minimum of time in teaching.

Then the primary health centres are not properly equipped. If they have a microscope, there is no technician or stains for carrying out even elementary examinations. A referigerator may be there, but there is no electric connection, even though electricity may be available within a reasonable distance. The staff is not provided with living quarters with the result that they have to find accommodation for themselves, which is not that easy in villages. The provision for drugs and allocation of funds for other miscellaneous expenses are often so inadequate that the poor doctor is obliged to prescribe drugs which have to be purchased from outside and one or two chemist's shops which are in the neighbourhood make money at the poor villager's expense. Many of the rural dispensaries are still run by the District or Local Boards and as regards their condition the less said the better.

After all, what is our ultimate aim? Is it not, what has been declared repeatedly from various platforms, that health services have to be nationalised? If that is so and if we agree on that main point, then it is also important that we make an impartial assessment of what we have done to attain that objective during the last 4 Five-Year Plans and what we intend to do in future. We have first of all to decide as to how long we should take to nationalise the services completely. It may be 5, 10 or 15 years, but not more than that. The country has waited long enough and will not wait any more.

The E.S.I. Scheme was started with fanfare 22 years ago, as a step to nationalised Health Plan. But what really happened with this scheme? In the first measure it was restricted rightly to registered factories. It was a good step, as this applied to an organised section of the working population but it was found that law-makers themselves became the law-breakers. The Government of India excluded their own factories and had separate methods of providing health services to them. Then the Local Governments followed suit and they also excluded their factories in most cases. The Government of India went one step further and started a new scheme—the C.G.H.S.—for their own employees. It could not be called a wise step. For difficulties were bound to arise in trying to combine a multitude of schemes into one comprehensive scheme, particularly, when sooner or later nationalisation was to come. Japan experienced the same difficulty. Let us retrace our steps and even now try to combine the various schemes into a well thought-out and integrated one. That alone can bring nationalisation nearer as a goal. The E.S.I. Act with slight modifications can be applied to every sphere. In fact, there is already a provision in it for extending it to other sections of the people. Only the text of the Act and its title have to be somewhat modified.

When this is done, the services can be extended gradually but within a maximum period of, say, 10 or at the most, 15 years. There are 2 methods of doing this—either through Service System or the Panel System. A sufficient number of doctors is available in all big and small towns and there the scheme can be easily and quickly worked out through the Panel System. The terms and conditions can be easily settled with the help of the Indian Medical Association and the authorities can rest assured that if the Government asks for the Association's co-operation they will find the Association fully co-operative and reasonable.

In rural and sparsely populated areas, the scheme will have to be introduced through Service System. It can be extended to the rural population within the fixed period, as at present our medical colleges are turning out a sufficient number of graduates every year. The posts of medical officers manning this service should be fully paid ones but without the right of private practice. The system of allowing fully paid medical officers the privilege of private practice is a legacy of the British days and it is time that this was abolished. The pay offered to them should of course be sufficiently attractive and reasonable and let it be in the pattern of the composite pay introduced by the Government of India for the posts obtaining in All-India Institute of Medical Sciences, New Delhi. Let us demand the same pay scales as given to I.A.S. or I.P.S. officers but then we cannot have the cake and eat it too. If we get that pay, the reason for giving non-practising allowance disappears. The senior medical officers and teachers in medical colleges should also have the benefits of higher scales of pay as those of the other two services, so that they can aspire after the same emoluments as the highest paid persons amongst the I.A.S. cadre draw.

Along with the extension of the health insurance scheme to cover the rural population, stress should be laid on the re-organisation of the hospitals.

There should be primary health centres only in the periphery and no other class of medical aid centres, like rural dispensaries, run by Local Boards or other such bodies. There should be at least 2 doctors in a P.H.C., one of them preferably a lady doctor. They should be responsible for all health work, curative as well as preventive, in an area inhabited by say, 30 or 40 thousand people. They should have under them a sufficient number of para-medical staff like laboratory technicians, pharmacists, lady health visitors, trained midwives, vaccinators, etc. Training of a large number of para-medical staff of all categories should start immediately, so that they are available for mobilisation when the health care facilities are extended. The P.H.C.s should have a minimum number of beds for treatment of ordinary ailments and also for observation of patients, before transfer of deserving cases to the nearest District Hospital. There should be adequate budgetary allocation for supply of drugs and for meeting other miscellaneous expenses in the P.H.C.s so that the patients are not asked to purchase drugs from outside.

Then, there should be a District Hospital with 300 to 500 beds depending upon the needs of the District involved. In the District Hospital services of specialists should be available for Surgery, Medicine, Paediatrics, Eye and E.N.T. etc. There should be available suitable conveyance for quick transport of cases from P.H.C. to District Hospitals. The District Hospital should naturally be better equipped if the service of the specialists posted there has to be properly utilised.

Then, there may be a big Divisional Hospital having a bed strength of 1000 or so, where the service of specialists for all types of diseases including minor ones are available and such hospitals must have first class equipment for investigation, diagnosis and treatment.

Medical college hospitals should be treated as the final institutions for consultation for all difficult cases, which cannot be dealt with at other centres.

No re-organisation scheme for health care can be successful without an army of qualified nurses. Hospitals of all categories should have an adequate number of nurses who are well trained and temperamentally suitable for nursing. A good, efficient and good-natured nurse is a great help to the doctor. She can be equally of help to the patient for the latter's recovery and smooth running of the wards. Training of a large number of nurses should be undertaken immediately and they should have a good elementary education before being selected for nursing training. The number of nurses may be in the ratio of one per 4, 5 or 6 beds, but the maximum number of beds allotted to the care of one nurse should not exceed 6.

As for the finances for such scheme of national health care imposition of Health Cess of one rupee per head per year for every member of a family—male or female, young or old—may be suggested. This will fetch many crores of rupees in view of the enormous size of our population. This amount should be devoted only to the improvement of hospital facilities and drugs, etc.

A very large number of buildings will be required at an early date for catering medical aid to the rural population through the P.H.C.s as the P.H.C.s or hospitals and their staff should all be housed in the same compus so that they are easily available. It is often heard that the P.W.D. takes a long time to complete its building programme and also that it pays very little attention towards buildings under the Health Plan as they have lot of other work to do. Let the Health Department have its own Building Section, so that unnecessary delay can be obviated. As for the plans for hospitals, some are easily available with the E.S.I. authorities at their headquarters in Delhi and, if necessary, these plans can be easily modified to suit the requirements of a particular area.

Every State or territory in India should be divided into 5, 10 or 15 zones and these zones should be distributed over various areas of the State and each year one zone should be taken up for implementation of the scheme so that the full scheme can take shape all over the country in course of 5, 10 or 15 years as scheduled originally. In smaller States and territories the scheme can be completed in a shorter time. Obviously all concerned must work wholeheartedly as one team if the country has to be provided with health facilities of all sorts in the specified period.

In the scheme of health care drugs have an important role to play. It is not always good to go in for cheapness, as the recent Kanpur tragedies have proved. We have to think in terms of the quality and standard depending upon Indian Pharmacopoeia and the National Formulary. In a vast majority of cases these drugs will answer the need and no drug or formula should be allowed to be placed on the market by any firm unless it has been found effective and non-toxic by either a Committee appointed for the purpose or by authorities, such as I.C.M.R. or the Central Drug Research Institute, as the Government may find it proper.

NOTES AND NEWS

ICMR to Guide Mosquito Research Project of WHO Unit

The governing body of the Indian Council of Medical Research, which recently met under the chairmanship of the Union Health Minister, Dr. Karan Singh decided to maintain a closer association of ICMR with the research projects of the World Health Organisation's Genetic Control of Mosquito Units (GCMU) in New Delhi.

It decided to assess the 'impact of future release of genetically manipulated mosquitoes' by an independent monitoring body to be set up under the ICMR. The governing body also approved the recommendations of an expert group on virus, which had called for the "testing of new strains of mosquitoes released in experiments by the GCMU with respect to their potential to transmit yellow fever which is presently non-existent in India".

New Cadre of Para-Medical Personnel Proposed

The Director-General of Health and Family Planning Services, Dr. J. B. Srivatsava recently said at Bangalore that the Central Government had a proposal to build a new cadre of para-medical personnel called health assistants to help medical personnel at the 6,000 primary health centres in the country.

These health assistants would form the highest echelons in the para-medical cadre. They would be attached to doctors at primary health centres after two years' training in the treatment of certain common ailments and in nutrition and national health service programmes. They would be chiefly in-service personnel and would not be given diplomas or certificates after training.

Dr. Srivatsava said that the Indian Medical Council had not raised any objection to the creation of this cadre. Steps would be taken to see that they worked as functionaries under doctors in the primary health centres and would not be given independent charge.

The Union Health Directorate was working out details and the new cadre would be created soon after clearance by the Planning Commission, he informed.

Success Claimed in Oral Fluid Therapy for Cholera

The Calcutta-based Cholera Research Centre of the Indian Council of Medical Research claims to have made a breakthrough in the treatment of cholera by developing an oral fluid therapy, the Centre's Director, Mr. S. C. Pal, recently said at Calcutta.

Named as 'Orosol', a combination of four known and common chemicals, the oral therapeutic fluid had been applied for the first time in the cholera that revaged the Cooch-Behar district of West Bengal recently and spectacular result was obtained in reducing the mortality rate, he said.

Eight medical scientists of the Centre undertook the project in collaboration with the Infectious Diseases Hospital, Calcutta, in August, this year and reported their success to the ICMR in the first week of October.

IDPL to Make New Antibiotics

The antibiotics plant of the Indian Drugs and Pharmaceuticals Limited at Rishikesh proposes to introduce new strains of life-saving antibiotics in the future.

The plant, which had been set up with Soviet collaboration, had been receiving many new strains from the Soviet Union particularly, for streptomycin sulphate, tetracyclines, griesofulvin, penicillin, and oxytetracycline.

Some of these strains have already been satisfactorily tried in the main plant at Rishikesh. Some foreign private firms, including the US firm, Pfizers, have come forward with offers of improved technology for tetracycline and oxytetracycline. These offers are at present being examined by the IDPL in the context of the Fifth Plan.

The expansion and diversification programme of the IDPL during the Fifth Plan also includes establishment of a nicotinamide plant, expansion of the synthetic drugs plant, and setting up of a new independent formulation unit.

Tardy Progress of Family Planning Schemes

Addressing a national convention on World Population organised by the All India Panchayat Parishad at Lucknow Dr. Karan Singh, Union Health Minister, admitted that the country had not been able to make the family planning programme a great success so far and that it was still busy finding out new family planning devices.

Dr. Karan Singh said in the Fifth Plan the country envisaged lowering its birth rate from the existing 35 per 1000 to 30 per 1000 and by the end of the Sixth Plan, it might be brought down to 25 per 1000.

It had been decided to unite family planning with public health and nutrition programme and to seek the cooperation of Nyay Panchayats to popularise family planning among the rural masses, he said.

Declining Trend in Incidence of TB

Delivering his oration on the Taming of Tuberculosis at the recently held eastern regional conference of the International Union against Tuberculosis at New Delhi Prof. K. V. Krishnaswami, Director of Government Chest Institute, Madras, said that epidemiological and other studies indicated the process of declining trend of incidence of tuberculosis in India. According to him the favourable factors for the declining trend were:

The relative low virulence of the Indian strain of *Myco. tuberculosis*; the finding that infectiousness of tuberculosis was not so high as was thought to be; an unusually long interval between the time of initial infection and onset of the disease; reduction in the mortality rate; reduction in the prevalence noticed in some areas like Delhi and a consequential lowering of infectivity; the bulk of the cases occurring among the older age group; absence of pronounced "youth peak" prevalence and disappearance of the high incidence of fresh cases in early adulthood effecting the lowering in the prevalence of bacillary cases and widespread prevalence of non-specific allergy which is believed to offer protection against tuberculosis.

Dr. Krishnaswami felt that the pace of this declining trend could be acclerated by a concerted effort in proper and effective application of our knowledge of the treatment of tuberculosis by chemotherapy and its prevention with a much faster and wider use of BCG.

Scientific Conference at B. R. Singh Hospital, Calcutta

On the occasion of its 4th Annual Scientific Conference, the Doctors' Club of B. R. Singh Hospital, Eastern Railway, Calcutta, will hold a symposium on Peptic Ulcer on 15th December, 1974. The symposium in which speakers from different parts of India have been invited to participate will be inaugurated by Dr. S. N. Sen, Vice-Chancellor, Calcutta University and presided over by Dr. A. B. Mukerjee, Professor and Head of the Department of Medicine, Calcutta National Medical College.

REVIEW

Medical Mycology—N. C. Dey, H.L.E. Grueber and T. K. Dey, 2nd edition, 1973, Allied Agency, Calcutta, 25 cm. × 18.5 cm. pp. 8+320, Rs. 45.00, £2.25, US $ 6.00.

This is a revised, enlarged and definitely an improved edition of the book. The first edition was published in 1968.

In this edition, the general facets of Medical Mycology including classification, cytology, nutritional requirements, reproduction, and terms and nomenclature of fungi are briefly discussed; the mycotic diseases are grouped more systematically; each mycosis is dealt with more elaborately; and details of some modern methods of laboratory studies are added. The chapters on "Pathology of subcutaneous and systemic mycoses" by H. L. E. Grueber, "Serodiagnosis of fungal diseases", "Antibiotics and chemotherapy for mycoses"; and the Appendix C on histopathological procedure for stains are new additions. In the chapter, "Opportunistic fungi", aspergillosis is described elaborately and cladosporiosis is included. More tables and figures are presented. Many new photographs of patients and photomicrographs of cultures and clinical material are added.

But there are defects, too, in this book. The recently recognised mycoses are not included. Epidemiological aspect is very poor and epidemiology is not discussed along with each mycosis. The causative agents of some mycoses are misrepresented and some of the binomials are back-dated. In this improved edition of the book the authors could have excluded the old drawings published in the 1st edition, particularly in chapters decorated with photographs and photomicrographs of the same matter.

To conclude, this textbook, most probably the first of its kind by Indian authors, may be helpful for the beginners intending to learn medical mycology.

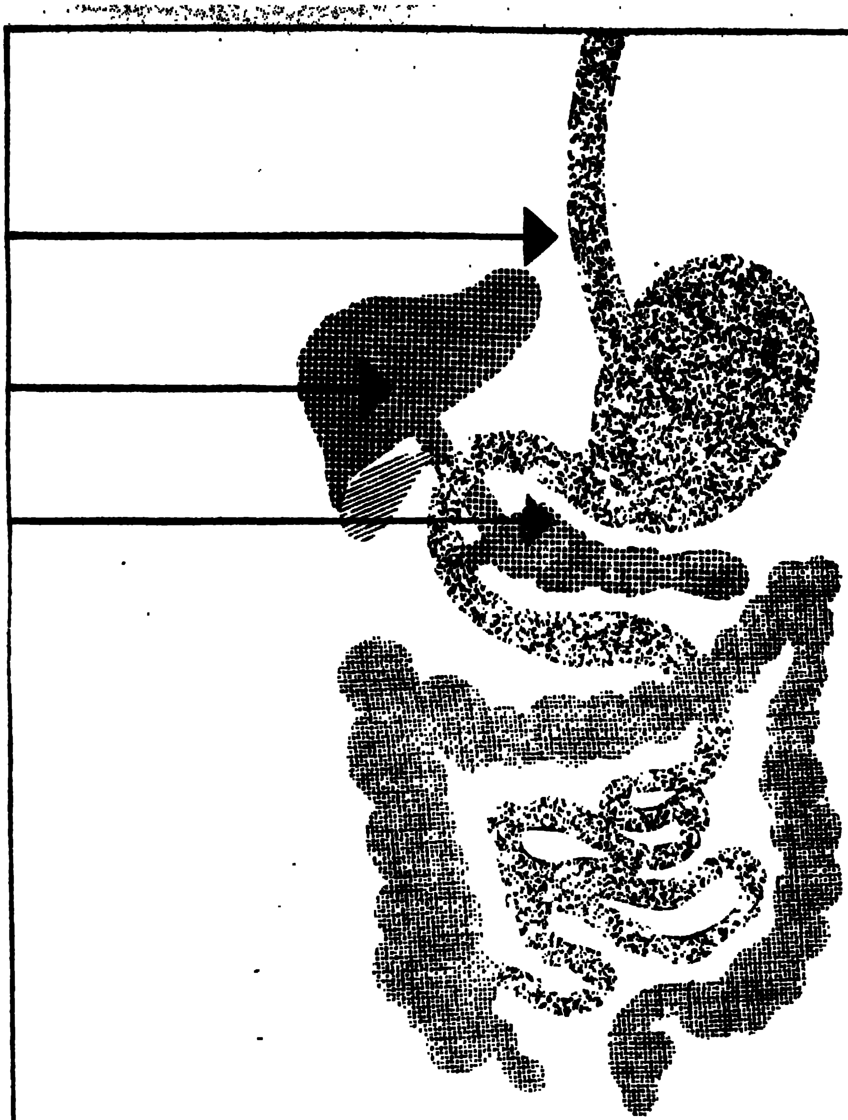
MAYA SANYAL

OBITUARY

Dr. S. R. Issar

Born at a village in Jhelum district (now in Pakistan) on 5-11-1906, Dr. Som Raj Issar had a brilliant academic career. He passed the L.S.M.F. (Punjab) examination in 1926, securing the coveted Hidayatullah Chamber Medal in surgery and distinction in several other subjects. After completing his housesurgeonship he served as a demonstrator in anatomy from 1927 to 1937. In recognition of his services, he was promoted to P.C.M.S. in 1953 and he proved himself a very popular and successful officer in his cadre. After retirement in 1961 he started private practice at Hissar and rose to be a leading practitioner in the Hissar town and the district. He was awarded Parman Patra in 1969 for helping the district administration and rendering valued social service.

Dr. Issar always took an active part in the activities of I.M.A. He was a founder of the Hissar Branch and was its Vice-President for the last four years. He was also a member of the managing committee of Churamani Vaishno Devi Maternity Hospital. After a protracted illness he breathed his last on 10-9-1974. He is survived by his wife, three sons and three daughters.



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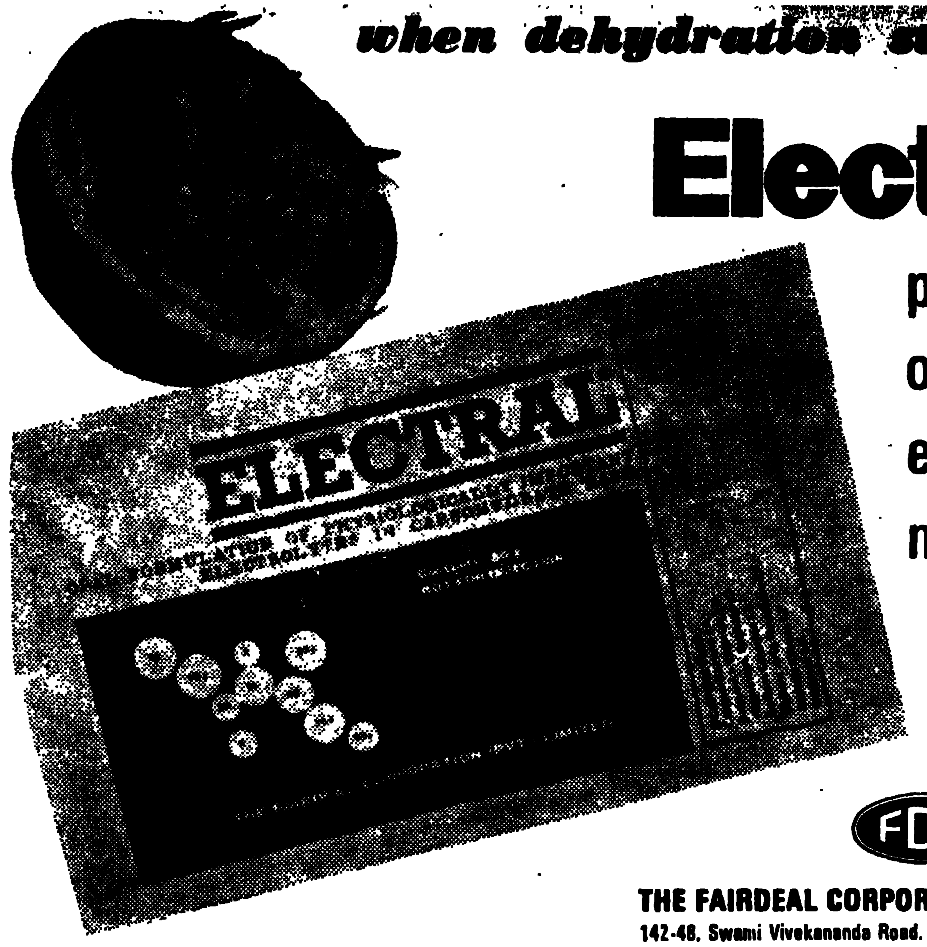

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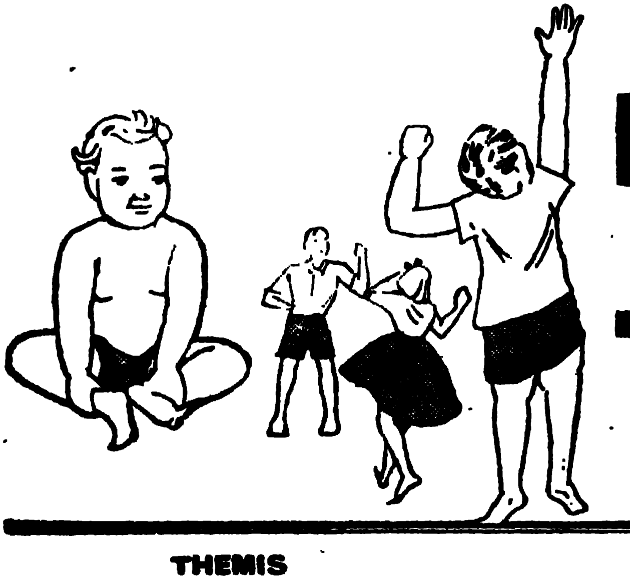

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SUPPLEMENT

JOURNAL OF THE INDIAN MEDICAL ASSOCIATION

VOL. 63, No. 11 CALCUTTA DECEMBER 1, 1974

50th All India Medical Conference : Calcutta : December 25-27, 1974

VENUE—CALCUTTA MAIDAN GROUND, NORTH OF SSKM (PG) HOSPITAL

ARRANGEMENTS FOR FOOD AND ACCOMMODATION

Dr. Sushil Banerjee, Organising Secretary 50th All India Medical Conference, Calcutta, has drawn the attention of all intending participants of the conference to the following:

With the conference approaching the Reception Committee requests all members of I.M.A., who would like to fix up in advance their accommodation and food arrangements at Calcutta to let the Committee know their requirements at the earliest opportunity. Those who want to put up in hotels may kindly make their choice from the list given below of hotels with tariff mentioned against each. If a member wants the Reception Committee to book accommodation for him in a hotel, he must forward his request for such accommodation specifying the class of hotel and enclosing a bank-draft or postal order covering 2 days' charges in advance payable in favour of '50th All-India Medical Conference, 1974, IMA, Bengal'. Since there will be a heavy rush of visitors to Calcutta for the Cricket Test Match to start on December 27, members are advised to ensure their accommodation in hotels by taking early action in this respect.

Arrangements are being made by the Reception Committee to set up Canteens at the place of the conference where delegates and visitors will be served vegetarian or non-vegetarian meals on payment. Those who would like to avail of this facility should procure food tickets for a minimum of 3 days, the charges per ticket per day being Rs. 20/- only. Against the food ticket breakfast, lunch, afternoon tea and dinner will be served.

The Reception Committee will also provide accommodation for a limited number of delegates and visitors at the campus/hostels. The Central Council members of IMA coming for the Council meeting on December 23 and 24, 1974, would be given priority in the matter of reservation of hostel accommodation. Charges for such accommodation would be Rs. 25/-, Rs. 20/- and Rs. 15/- per member for attendance from 23rd, 24th and 25th December respectively. Those desiring to stay in the campus/hostels are requested to bring along their own beddings with mosquito curtain and woollen rugs or quilts.

Hotel accommodation charges for foreign visitors have to be paid in advance in foreign currency as per rules enforced by the Government of India.

Reservation of accommodation in the following State Guest Houses has to be booked by the delegates concerned from their home States:

i) Maharashtra Nivas—Rs. 12/- per head per day, 15, Hazra Road, Calcutta 26
ii) Gujarat Boarding House—Rs. 4/- per head per day, P-5 Canning Street, Calcutta 1

The Reception Committee regrets to inform the members that due to labour troubles for which a lockout has been declared in their establishment M/s. Mercury Travels, who were appointed official travelling agents for the Conference, are not in a position to act in that capacity. M/s. American Express (21 Old Court House Street, Calcutta 1) Phone 236281 (7 lines) has, therefore, been appointed as our official Travelling Agents.

LIST OF HOTELS WITH THEIR TARIFF

Western Style Hotels:	Single	Double
*1. **Oberoi Grand Hotel** 15, Jawaharlal Nehru Road, Calcutta-13. (Tel. 23-2391)	Rs. 160/- ($ 21.50)	Rs. 215/- ($ 28.75)
*2. **Ritz Continental Hotel** 12, Jawaharlal Nehru Road, Calcutta-13. (Tel. 23-2391)	Rs. 180/- ($ 23.22)	Rs. 222/- ($ 28.85)
*3. **Hotel Hindusthan International** 235/1, Acharyya Jagadish Bose Road, Calcutta-20. (Tel. 44-2394)	Rs. 110/- ($ 15.10)	Rs. 150/- ($ 20.00)
*4. **Park Hotel** 17, Park Street, Calcutta-16. (Tel. 24-8301)	Rs. 90/- ($ 13.00)	Rs. 130/- ($ 19.00)
*5. **Spence's Hotel** 4, Wellesly Place, Calcutta-1. (Tel. 23-6871)	Rs. 55/- ($ 7.50)	Rs. 100/- ($ 13.27)
*6. **Great Eastern Hotel** 1, 2 & 3, Old Court House St., Calcutta-1. (Tel. 23-2311)	Rs. 100/- ($ 13.27)	Rs. 150/- ($ 19.90)
*7. **Minerva Hotel** 11, Ganesh Ch. Avenue, Calcutta-13. (Tel. 23-5540)	Rs. 45/- to Rs. 50/-	Rs. 76/- to Rs. 96/-
*8. **Fairlawn Hotel** 13/A, Sudder Street, Calcutta-16. (Tel. 24-4460)	Rs. 55/- (Full board)	Rs. 93.50 (Full board)

Western Style Hotels:	Single	Double
*9. **Kenilworth Hotel** 7, Little Russel Street, Calcutta-16.	Rs. 75/-	Rs. 105/-
*10. **New Kenilworth Hotel** 1-2, Little Russel St., Calcutta-16. (Tel. 44-2647)	Rs. 73/-	Rs. 115/-
Indian Style Hotels:		
*1. **Metropole Hotel** 4, Dacres Lane, Calcutta-1, (Tel. 24-8151)	Rs. 30/-	Rs. 35/-
*2. **Hoteller & Associates** (Sriniketan Boarding House) 37, Mahatma Gandhi Road, Calcutta-9. (Tel. 35-0380)	Rs. 12/- (common bath) Rs. 14/- to Rs. 20/- (attached bath)	Rs. 16/- Rs. 23/- (common bath) Rs. 30/- to Rs. 40/- (attached bath)

Indian Style Hotels:	Single	Double
*3. **Tower Lodge** 53A, Surja Sen Street, Calcutta-9.	Rs. 15/- (full board)	Rs. 36/- (full board)
*4. **Rajasthan Guest House** 19, Zakaria Street, Calcutta-1. (Tel. 34-8153)	Rs. 12/-	Rs. 22/-
*5. **Central Imperial Hotel** 47A, Chittaranjan Avenue, Calcutta-12. (Tel. 34-6878)	Rs. 12/-	Rs. 20/-
*6. **Y.W.C.A.** "Gallway House" 1, Middleton Row, Calcutta-16. (Tel. 24-2981) (For Ladies only)	Rs. 20/-	

*Bed and Breakfast. Service charges 3%—10% extra.

Association Notes

The Fifty Sessions of The All India Medical Conference

The forthcoming Calcutta session of All India Medical Conference marks the 50th session of the national conference of the medicalmen of our country. It does not indicate the 50th birth anniversary of IMA. For, the first four national medical conferences taking place at Calcutta, Delhi, Amritsar and Nagpur respectively between 1917 and 1920 were held before the IMA formally came into existence and it is during the 5th national conference held at Calcutta in 1928 that an All India Medical Association was formed, which was renamed as the Indian Medical Association in 1930. On the eve of the 50th All India Medical Conference—the Golden Jubilee Session—we recall the chronological record of the conference since 1917 including the venue and the names of the illustrious Presidents and those who steered the course of IMA as Joint Hony. Secretaries till 1936-37 or as Hony. General Secretary thereafter.

Sl. No.	Year	President	Jt. Hony. Secretaries/ Hony. General Secretary*	Venue
1.	1917	Lt. Col. Raghabandra Rao	......	Calcutta
2.	1918	Sir Nilratan Sircar	......	Delhi
3.	1919	Dr. M. N. Odhedar	......	Amritsar
4.	1920	Dr. Maharaj Kissen Kapur	......	Nagpur
5.	1928	Dr. G. V. Deshmukh (Bombay)	Dr. D. D. Sathaye (Bombay) Dr. A. N. Ghosh (Calcutta) Dr. K. S. Ray (Calcutta)	Calcutta
6.	1929	Dr. B. C. Roy (Calcutta)	Dr. D. D. Sathaye (Bombay) Dr. A. N. Ghosh (Calcutta) Dr. K. S. Ray (Calcutta)	Lahore
7.	1931	Dr. Jivraj N. Mehta (Bombay)	Dr. D. D. Sathaye (Bombay) Dr. A. N. Ghosh (Calcutta) Dr. K. S. Ray (Calcutta)	Poona
8.	1931	Sir Nilratan Sircar (Calcutta)	Dr. D. D. Sathaye (Bombay) Dr. A. N. Ghosh (Calcutta) Dr. K. S. Ray (Calcutta)	Calcutta
9.	1932	Major N. G. Naidu (Hyderabad)	Dr. D. D. Sathaye (Bombay) Dr. K. S. Ray (Calcutta) Dr. S. N. Kaul (Lahore)	Lucknow
10.	1933	Dr. M. A. Ansari (Delhi)	Dr. D. D. Sathaye (Bombay) Dr. K. S. Ray (Calcutta) Dr. S. N. Kaul (Lahore)	Bombay
11.	1934	Col. Bhola Nath (Lahore)	Dr. J. P. Modi (Ahmedabad) Dr. Bhupal Singh (Meerut) Dr. K. S. Ray (Calcutta)	Delhi

Sl. No.	Year	President	Jt. Hony. Secretaries Hony. General Secretary*	Venue
12.	1935	Dr. U. Rama Rao (Madras)	Dr. J. P. Modi (Ahmedabad) Dr. Bhupal Singh (Meerut) Dr. K. S. Ray (Calcutta)	Nagpur
13.	1936	Dr. B. N. Vyas (Lucknow)	Dr. K. S. Ray (Calcutta) Dr. Bhupal Singh (Meerut) Dr. R. A. Amesur (Karachi)	Karachi
14.	1937	Dr. B. C. Roy (Calcutta)	Dr. K. S. Ray (Calcutta)	Madras
15.	1938	Dr. George Da'Silva (Jabalpur)	Dr. K. S. Ray (Calcutta)	Meerut
16.	1939	Dr. Bhupal Singh (Meerut)	Dr. K. S. Ray (Calcutta)	Lahore
17.	1940	Dr. K. S. Ray (Calcutta)	Capt. P. B. Mukherjee (Calcutta)	Vizagapatanam
18.	1941	Dr. K. S. Ray (Calcutta)	Capt. P. B. Mukherjee (Calcutta)	Hyderabad
19.	1943 (April)	Dr. R. A. Amesur (Karachi)	Capt. P. B. Mukherjee (Calcutta)	Patna
20.	1943	Dr. S. N. Kaul (Lahore)	Capt. P. B. Mukherjee (Calcutta)	Ahmedabad
21.	1944	Dr. J. N. Mehta (Bombay)	Capt. P. B. Mukherjee (Calcutta)	Kanpur
22.	1945	Dr. R. A. Amesur (Karachi)	Capt. P. B. Mukherjee (Calcutta)	Amritsar
23.	1946	Capt. P. B. Mukherjee (Calcutta)	Dr. P. K. Guha (Calcutta)	Madura
24.	1947	Lt. Col. Amir Chand (Punjab)	Dr. P. K. Guha (Calcutta)	Bombay
25.	1948	Capt. S. K. Chaudhury (Banaras)	Col. Amir Chand (Delhi)	Calcutta
26.	1949	Dr. Chaman Lal Mehta (Bombay)	Dr. S. C. Sen (Delhi)	Allahabad
27.	1950	Dr. T. N. Banerji (Patna)	Dr. S. C. Sen (Delhi)	Sholapur
28.	1952 (Feb.)	Dr. T. S. Tirumurti (Madras)	Dr. S. C. Sen (Delhi)	Ahmedabad
29.	1952	Dr. B. V. Mulay (Sholapur)	Dr. S. C. Sen (Delhi)	Patna
30.	1953	Dr. S. C. Sen (Delhi)	Dr. A. P. Mittra (Delhi)	Hyderabad
31.	1954	Dr. S. C. Sen (Delhi)	Dr. A. P. Mittra (Delhi)	Lucknow
32.	1955	Dr. A. C. Ukil (Calcutta)	Dr. A. P. Mittra (Delhi)	Jaipur
33.	1956	Dr. C. S. Thakar (Bombay)	Dr. A. P. Mittra (Delhi)	Trivandrum
34.	1957	Dr. D. V. Venkappa (Madras)	Dr. A. P. Mittra (Delhi)	Bangaolre
35.	1958	Dr. C. O. Karunakaran (Madras)	Dr. A. P. Mittra (Delhi)	Cuttack
36.	1959	Dr. H. N. Shivapuri (Lucknow)	Dr. A. P. Mittra (Delhi)	Indore
37.	1962 (Jan.)	Dr. R. V. Sathe (Poona)	Dr. A. P. Mittra (Delhi)	Kanpur
38.	1962 (Dec.)	Dr. B. P. Trivedi (Calcutta)	Dr. Ved Prakash (Delhi)	Poona
39.	1963	Dr. S. Samaddar (Patna)	Dr. Ved Prakash (Delhi)	Madras
40.	1964	Dr. A. P. Mittra (Delhi)	Dr. Ved Prakash (Delhi)	Kakinada
41.	1965	Dr. Shantilal C. Sheth (Bombay)	Dr. Ved Prakash (Delhi)	Baroda
42.	1966	Dr. Bhola Nath (Banaras)	Dr. Ved Prakash (Delhi)	Dhanbad
43.	1967	Dr. P. R. Trivedi (Ahmedabad)	Dr. Ved Prakash (Delhi)	Jabalpur
44.	1968	Dr. G. S. Wagle (Bombay)	Dr. Ved Prakash (Delhi)	Allahabad
45.	1969	Dr. G. V. Joshi (Hubli)	Dr. P. C. Bhatla (Delhi)	Manipal
46.	1970	Dr. A. K. N. Sinha (Patna)	Dr. P. C. Bhatla (Delhi)	Bikaner
47.	1972 (Feb.)	Dr. A. K. N. Sinha (Patna)	Dr. P. C. Bhatla (Delhi)	Madras
48.	1972 (Dec.)	Dr. M. G. Bhide (Poona)	Dr. P. C. Bhatla (Delhi)	Ahmedabad
49.	1973	Dr. Ved Prakash (New Delhi)	Dr. P. C. Bhatla (Delhi)	Hubli.
50.	1974	Dr. J. Majumdar (Calcutta) (President-Elect)	Dr. P. C. Bhatla (Delhi)	Calcutta

*The Office of Hony. General Secretary started from the session 1937-38

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1948-49	Dr. Ranjit Sinha	1971-72 to 1973-74	Dr. P. K. Chaudhuri
1949-50	Dr. P. K. Chatterji		Dr. S. C. Kundu (Offg.)

Scientific Sessions of 50th All India Medical Conference

Dr. A. B. Mukerjee, Chairman and Dr. N. N. Roy Chowdhury, Secretary, Scientific Sub-Committee of the 50th All India Medical Conference, inform:

The Scientific Session of the 50th All India Medical Conference will be inaugurated by Dr. Shantilal C. Sheth, President, Medical Council of India, on 25th December, 1974. Dr. Satyendra Nath Sen, Vice-Chancellor, Calcutta University, will be present as the Chief Guest. The session will continue till 27th December. At different sittings guest-lectures will be delivered by Dr. Murray Clarke from Australia on Burns, Dr. A. K. Mondal from Oklahoma on Renal Intensive Care, Dr. J. B. Dosseter from Canada on Renal Transplantation, and Dr. C. S. Gopalan, Director, ICMR, on Nutrition.

Panel discussion will be held on 1) Intensive Care, 2) Rural Health and Nutrition and 3) Medical Termination of Pregnancy.

Two symposia have also been arranged on 1) Emergencies in General Practice and 2) Acute Abdomen.

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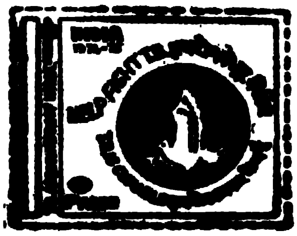

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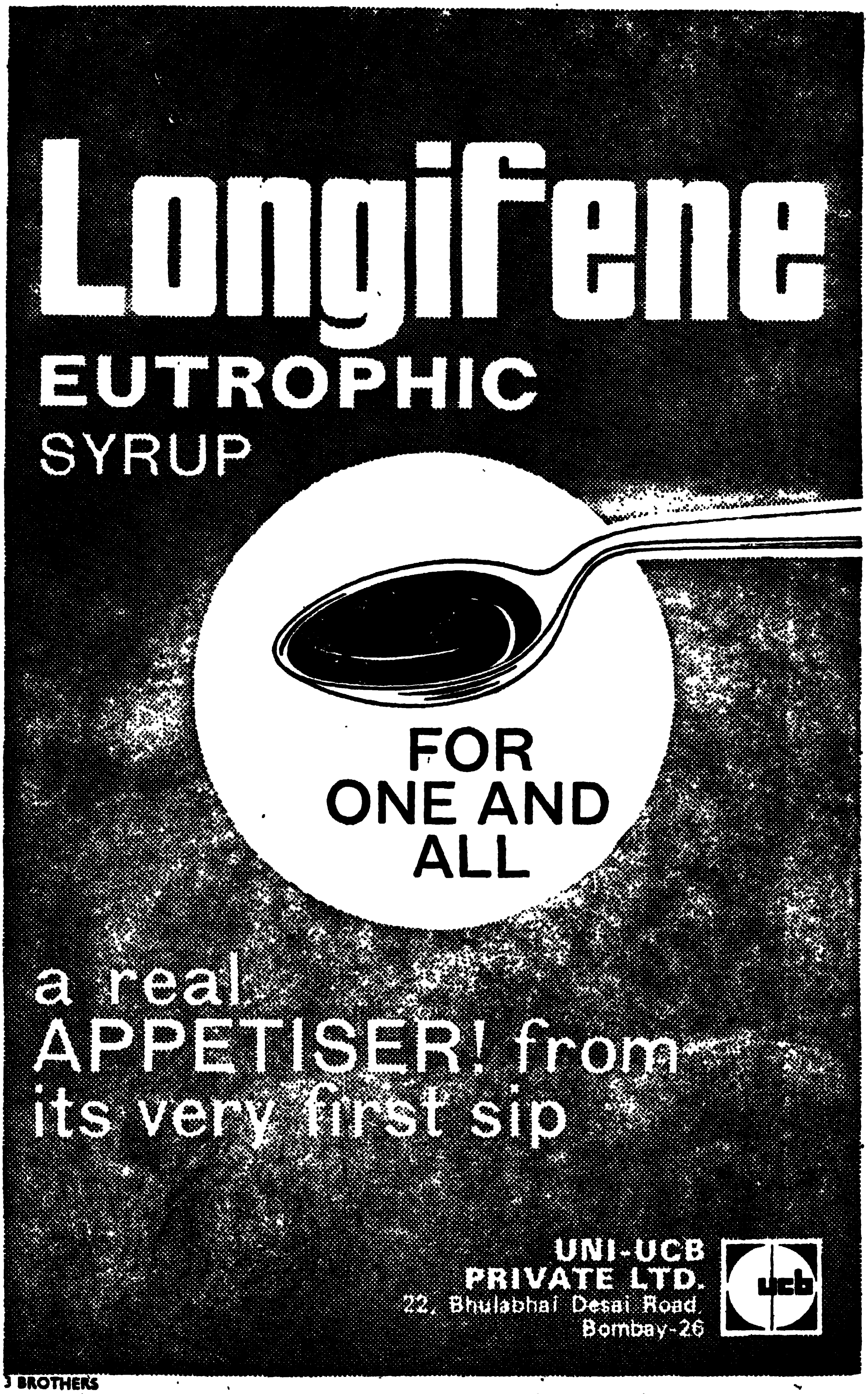

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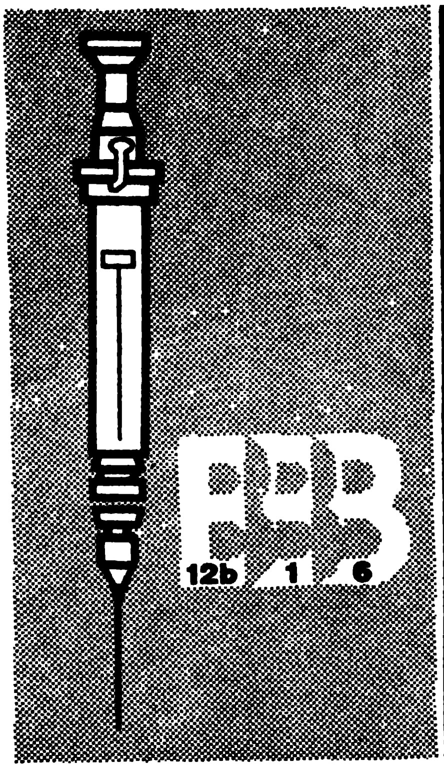

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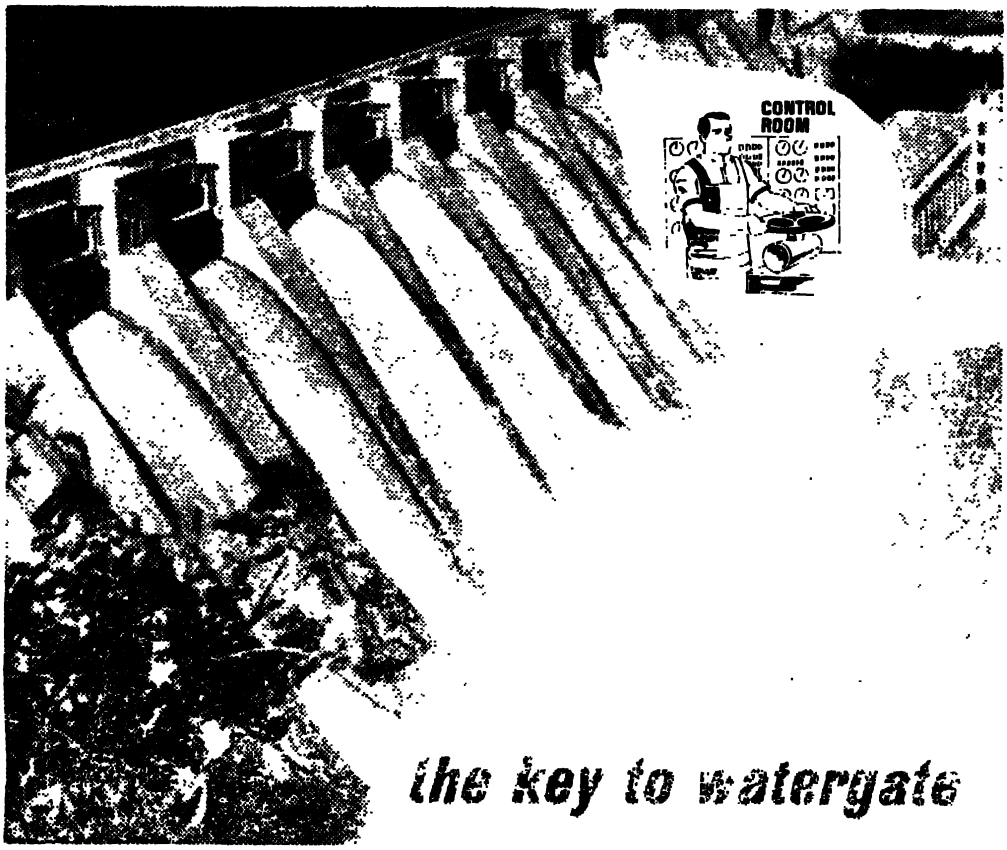

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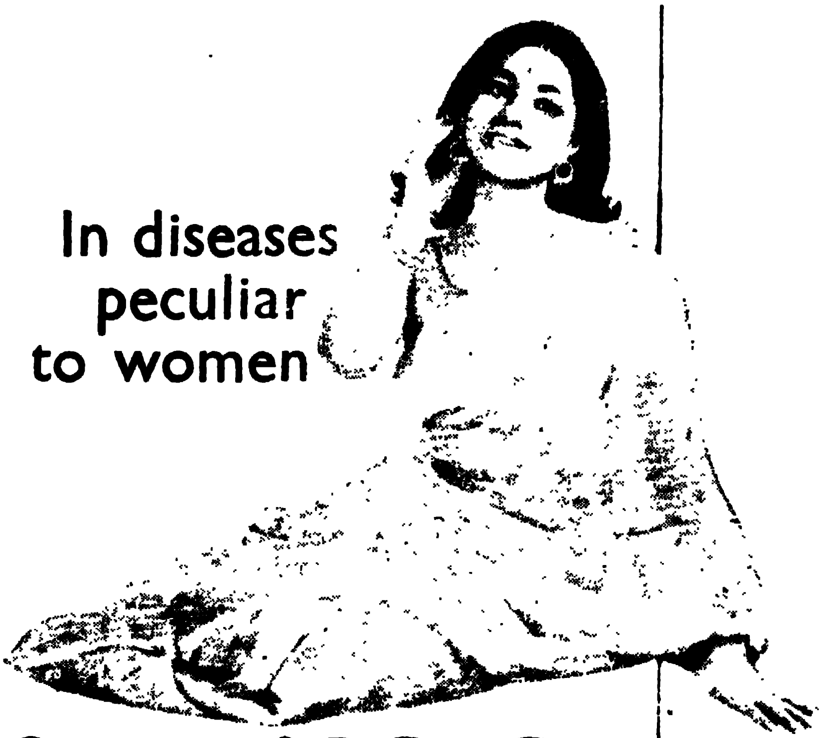

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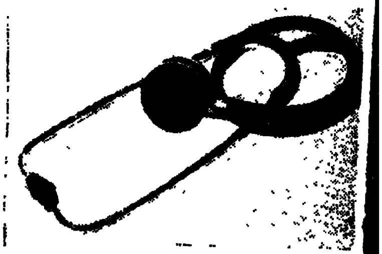

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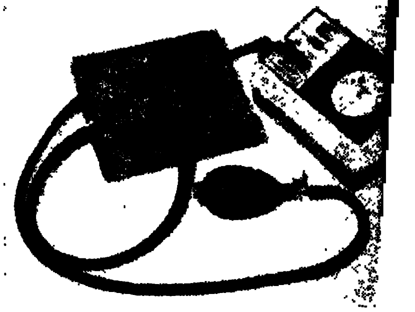

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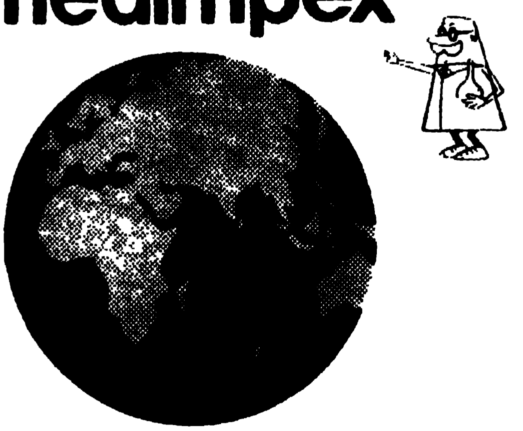

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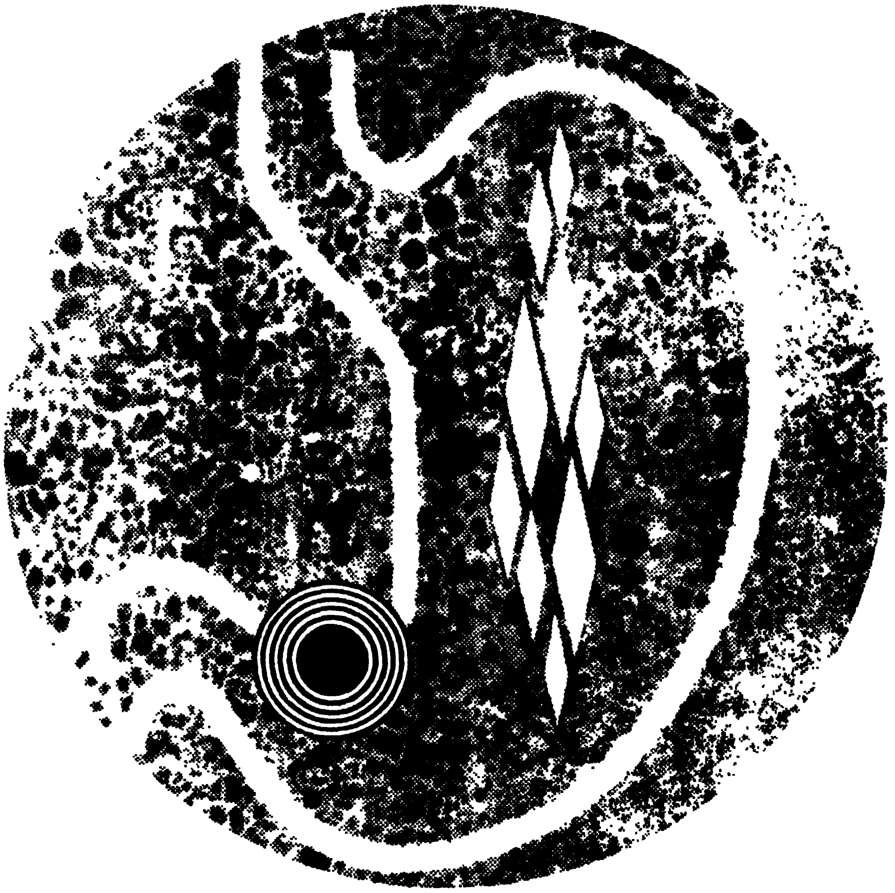

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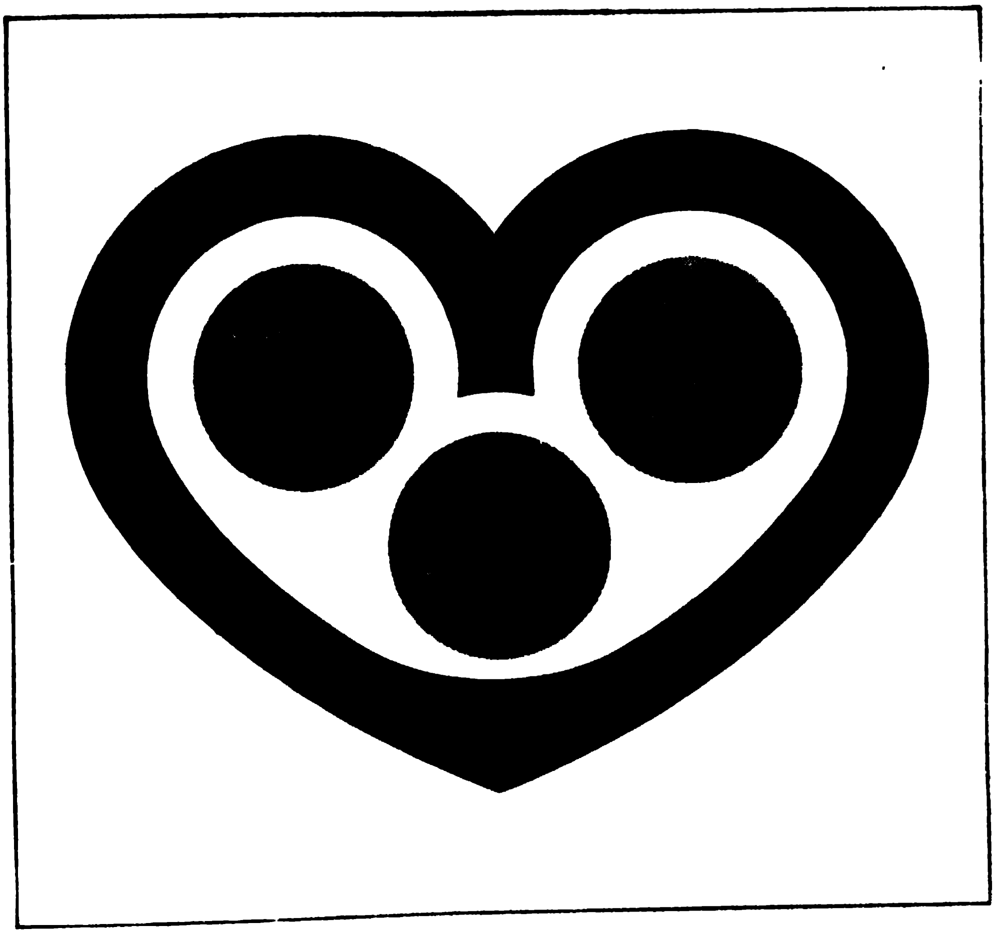

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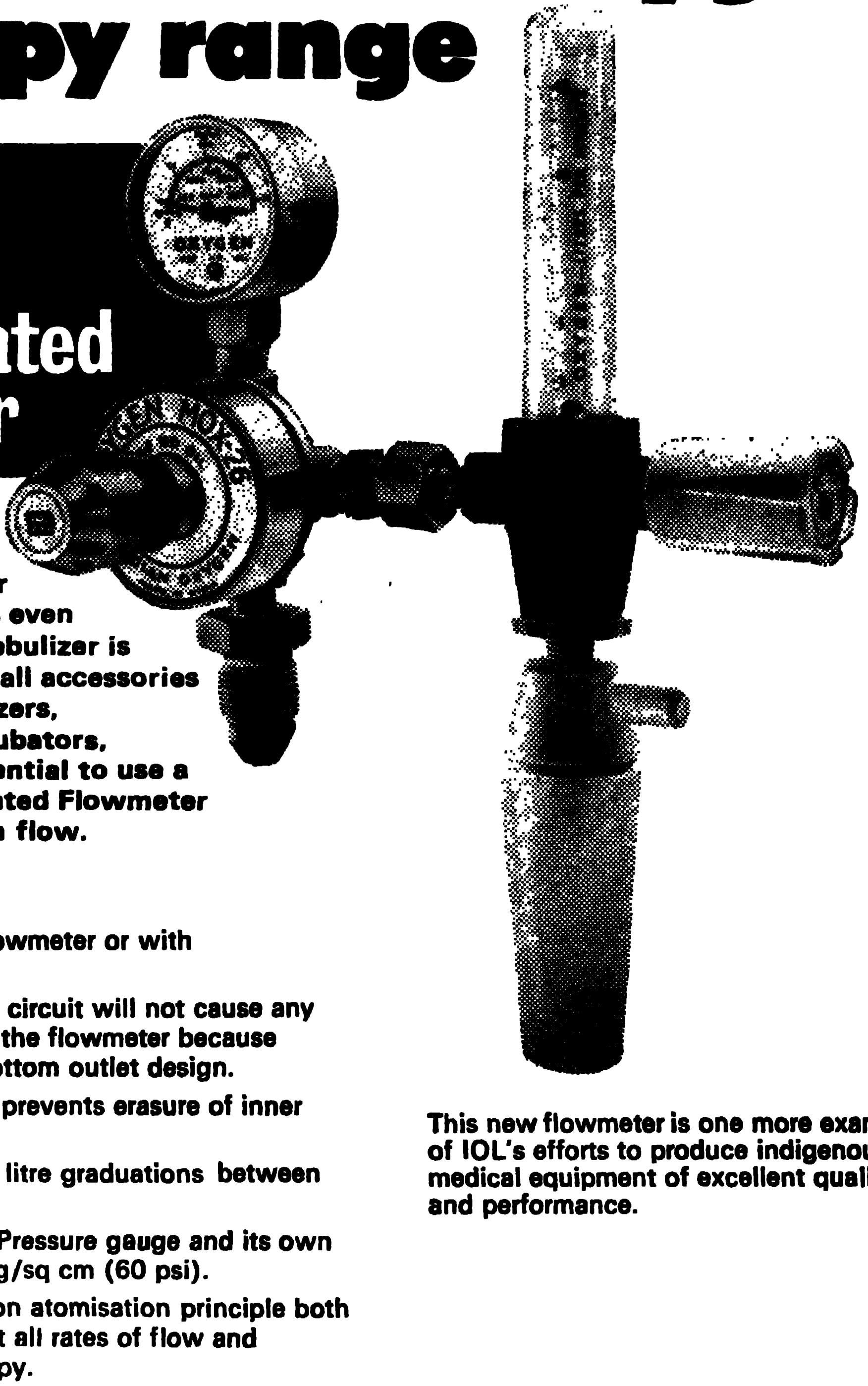

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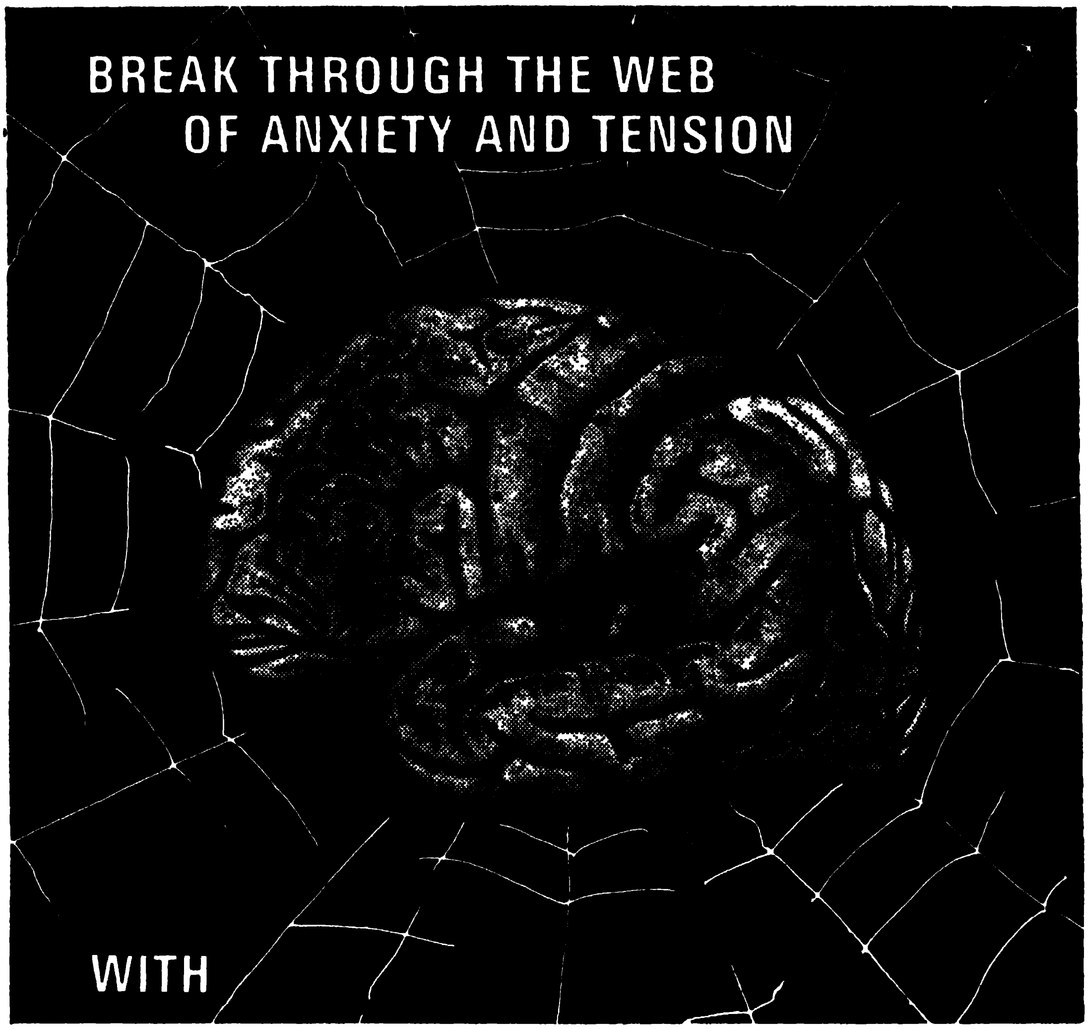

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"fat people die first..."[1]

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"In the present study fenfluramine
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References:

1. *British Medical Journal 1969, 3, 41.*
2. *Journal of the Association of Physicians of India, 1972, 20:11, 851*

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patients with haematuria needed blood transfusion.

Haemoptysis occurred in 87 patients. It was usually mild, and in the majority of patients only blood-stained sputum was expectorated on coughing.

Bleeding from the site of the bite was present in 108 patients. Bleeding was continuous and severe in patients who were given incision as first aid treatment. Considerable blood was lost by this injudicious treatment. Many of these patients needed blood transfusion. In other patients, bleeding was a mild ooze of no therapeutic importance, though it was a useful guide to haemorrhagic state.

Bleeding from gums occurred in 40 patients. Usually it occurred in patients with poor orodental hygiene. Thirty-seven patients had haematemesis. There was no history of peptic ulcer in any of these patients. As a rule, haematemesis occurred only once or twice. Persistent repeated vomiting of blood occurred only in 5 patients. Twenty-two patients had epistaxis. This did not occur from the Little's area. In 13 patients, oozing of blood persisted from the injection site. Bleeding per rectum occurred in 6 patients. All 6 patients had bleeding from haemorrhoids. Subarachnoid haemorrhage occurred in 6 patients. Four patients were admitted with subarachnoid haemorrhage and 2 patients developed it in the hospital during treatment; 2 of the patients died and 4 made complete recovery.

A majority of the patients (168) developed haemorrhages between 7 and 48 hours after the bite. In 6 patients bleeding started between 1 and 6 hours after the bite. Forty-four patients developed haemorrhages between 25 and 48 hours, and 28 patients started bleeding 48 hours after the bite

Other symptoms—137 patients were fear stricken and anxious. All these patients had fear of death.

Blisters developed around the bite site in 130 patients (Fig. 4). Blisters varied in size from less than 1 cm. to more than a few cm. in diameter. Small blisters usually shrank. Large blisters usually ruptured leaving large denuded areas unless these were treated by aspiration. None of the patients developed local necrosis. Local necrosis does not seem to be a feature of viperine bites in this region

Vomiting occurred in 118 patients. In 47 patients vomiting was precipitated by the administration of antivenom serum. In 38 patients, replacement of fluids and electrolytes became necessary. Dehydration and electorlyte depletion is liable to endanger a patient in the summer months very quickly in this country.

Upper abdominal pain was another prominent symptom which occurred in 115 patients. In all patients pain subsided within a few days. No cause of pain could be found clinically. Regional lymph glands were enlarged and tender in 84 patients. Out of these, 51 patients had been given local incision.

Local pain at the site of bite occurred in 65 patients. Pain was mild and usually subsided within 24 hours.

Swelling of other parts of the body occurred in 16 patients. In 9 patients it occurred in sacral and gluteal regions. In one patient marked swelling occurred in the axilla. Six patients developed massive submental swelling extending down over the whole of the neck. Such swelling caused feeding difficulty because of the inability to open the mouth, and in one case there was marked respiratory embarrassment. Mental symptoms occurred in 19 patients. Three patients, lying side by side in the verandah of the ward, suddenly started dancing. They had to be physically overpowered and tied to the bed before they could be sedated with parenteral paraldehyde. One patient jumped out of the second storey of the hospital (about 20 feet). Fortunately, he fell on the soft ground below and did not sustain any serious injury. Fifteen patients developed a confusional state which persisted even after all symptoms had subsided. Mental symptoms do not appear to be a direct effect of envenomation. These symptoms seem to depend upon the personality of the victim influenced by the superstitions associated with snakes and snake bites. Eighty-four patients (27 per cent) complained of palpitation. No cardiac abnormality was detected clinically. Thirteen patients (4 per cent) developed dyspnoea with bronchospasm. This subsided within 48 hours Six patients (2 per cent) were admitted in a state of shock with rapid thready pulse, cold perspiration and systolic B.P. below 80 mm. of Hg. All had severe persistent haemorrhage. Two of these patients were admitted on the 6th day of the bite, 1 on the 5th day, 2 on the 4th day and one on the 3rd day of the bite. No patient, admitted within the first 48 hours of the bite, had shock. The pulse rate ranged between 70 per minute to 130 per minute. The mean pulse rate at the time of admission was 102 per minute. 28 patients (9 per cent) had a systolic B.P. of less than 100 mm. of Hg. at the time of admission. All these patients had bleeding and had Hb less than 8 g. per cent.

Complications—Local infection was common in patients who were given incision. Out of 84 patients who had incision, 79 patients developed local infection. 226 patients who did not have any incision did not develop local infection.

Sixty-six patients had pyrexia ranging between 99° F and 103° F. Pyrexia was present in 61 of the 84 patients who had incision and 6 patients out of 226 did not have any incision. Pyrexia occurred within first 2 days and lasted for 3 to 6 days. Pyrexia was most probably caused by the introduction of infection during the first aid treatment and was not an effect of envenomation.

Abortion occurred in all the 3 pregnant women. All the 3 patients had severe bleeding which needed blood tansfusion. All were multipara. Two aborted spontaneously and one patient needed evacuation. Incidentally, this gave lie to the local myth that snakes do not bite pregnant women.

Weakness of the bitten limb was complained of by 10 patients after all the signs and symptoms of the disease had subsided. No neurological abnormality was detected.

Osteomyelitis of the metatarsal bones occurred in 3 patients. All the 3 patients had received deep multiple incisions on the dorsum of the foot. These patients had to stay in the hospital for a prolonged period.

In a boy aged 13 years, gangrene of the left forearm and hand developed on the 4th day of the bite. The patient was bitten by a relatively large Echis on the right foot. Another boy who was near by was also subsequently bitten by the same snake while trying to rescue the boy. The snake was later killed and brought to the hospital on the 2nd day of the bite. The boy, bitten first, died while the boy, bitten later, had only mild systemic poisoning. This suggests that *Echis carinatus* discharges most of its venom in its first bite and a subsequent bite, immediately after the first one, is not likely to inject a lethal dose of the venom.

Serum reactions occurred in 9 patients These reactions were mild and were controlled by adrenaline and dexamethasone. Desensitisation was done before further serum was injected to such patients. Delayed serum sickness occurred in 1 patient who was re-admitted in a very ill state 12 days after the last injection of antivenom serum. He was treated with dexamethasone and was discharged on complete recovery after 7 days.

One labourer who was bitten 17 times during the last 10 years and on 2 occasions the snake was recognised as *Echis carinatus*, did not show any evidence of snake bite poisoning. His history revealed that on the first occasion he developed a serious illness with haematuria, haematemesis, haemoptysis and ecchymosis for which he was treated by injections of antivenom serum. After the first bite, subsequent bites did not cause any symptom. It appears that this patient developed complete immunity to Echis bites. This patient also demonstrated that *Echis carinatus* venom does not sensitise the patient to cause systemic anaphylaxis (Ellis and Smith, 1965).

No patient developed tetanus or gas gangrene. Only 98 patients received prophylactic tetanus antitoxin serum.

Local necrosis did not occur in any of our patients.

Investigations—A polymorphonuclear leucocytosis occurred in only those patients who had local infection and pyrexia (85 patients). In others, leucocyte count was normal.

In 116 patients with haemorhagic syndrome, a mean fall of 3.8 g./100 ml. of haemoglobin occurred.

We could not find any evidence of haemolysis in any of our patients. Reticulocyte count in 23 patients with haemorrhagic syndrome and anaemia was within normal limits. Platelet count in 34 patients with haemorrhagic syndrome was found to be within normal limits.

Coagulation defect is the most important haematological abnormality following viperine bites. This holds true for *Echis carinatus* and the Russell's viper as well. Coagulation defect was present in all the patients included in this study. 212 patients (78 per cent) had non-clotting blood. Out of this 188 had haemorrhagic syndrome. Sixty-eight patients (22 per cent) had defective clotting, although clotting time was normal (52 patients) or prolonged up to 20 minutes (16 patients). In all these patients the clot formed was not firm and no sooner than the clot formed the cells and serum started oozing out of the clot. In none of these patients the clot formed was such as to allow the tube to be turned upside down without spilling out the blood. Appreciable difference was noticed in the clot within 60 minutes when compared with the normal blood. This was done in each case for grading of clotting defect. The clot was observed for 48 hours although for clinical purposes grading of the clotting defect is possible within 4 to 6 hours of the test.

Although a majority of the patients who developed haemorrhagic syndrome, had non-clotting blood (188 patients), haemorrhagic syndrome also occurred in 14 patients with severe clotting defect.

The time of onset of clotting defect could be determined in only 81 patients who were admitted with normal clotting. While 54 patients developed clotting defect within the first 6 hours after the bite, 5 patients developed clotting defect even up to 24 hours. No patient was observed whose blood coagulation remained normal for 24 hours after the bite before the coagulation defect developed. There does not appear to be any correlation between the time of onset of the clotting defect and the time of onset of haemorrhagic syndrome. Only 6 patients developed symptoms within the first 6 hours although 54 patients developed clotting defect within the first 6 hours.

Out of 293 patients treated with antivenom serum, in 120 coagulation returned to normal within 24 hours (Table 4). These included all patients with grade II and grade III defects, 15 patients with grade IV defect and 60 patients with grade V defect. These included all the 108 patients without haemorrhagic syndrome and only 12 patients with bleeding.

TABLE 4—SHOWING THE TIME OF RETURN OF COAGULATION TO NORMAL AFTER TREATMENT WITH ANTIVENOM SERUM

Duration (hours)	Gr II	Gr III	Gr IV	Gr. V	Total	Haemorrhagic syndrome
1—24	7	38	15	60	120	12
25—48	--	·	8	151	159	159
49—72	—	·		6	6	6
73—96	—	--	-	3	3	3
Total	7	38	23	220	288	180

In 159 patients, who included 8 patients with grade IV coagulation defect and 151 patients with grade V defect, coagulation returned to normal between 25 and 48 hours. All these patients had haemorrhagic syndrome. In 6 patients with grade V defect and persistent bleeding, coagulation returned to normal between 49 and 72 hours. In 3 patients coagulation returned to normal between 73 and 96 hours. Five patients expired before the coagulation defect could be reversed. No patient expired whose coagulation returned to normal after treatment.

Out of 17 patients who were treated without antivenom serum and were given blood transfusion, coagulation temporarily became normal in 16 patients within 36 hours, but later again the coagulation became defective and blood remained non-clotting for an average period of 10 days (6 patients—12 days, 6 patients—11 days and 4 patients—5 days). Although coagulation remained defective, bleeding, once it stopped, did not recur in any of these patients. One patient expired on the second day of admission. He received 4 units of blood but his bleeding (persistent haematuria and haematemesis) did not stop and the blood remained non-clotting without showing a temporary reversal to normal clotting.

Microscopic haematuria was present in 242 patients. 102 had frank haematuria. Sixty-one patients had haemorhages from other sites but no microscopic haematuria. Seventy-nine patients did not have any overt bleeding from any site. All these patients showed proteinuria. Granular casts and hyaline casts were often seen in these patients. Urine became normal as soon as haemorrhages stopped and coagulation returned to normal except in 21 patients who had persistent haematuria and in whom proteinuria and casts were persistent for about 4 weeks. Haemoglobinuria was not present in any of the patients. Blood urea was raised in 28 patients with haemorrhagic syndrome, ranging between 60 and 90 mg. with a mean of 74 mg. Blood urea fell to normal within a week in all patients. Serum amylase and urinary diastase, estimated in 7 patients with severe abdominal pain, were within normal limits. ECG. of 23 seriously ill patients showed T wave inversions. These changes returned to normal in 17 patients; 6 patients died. Skiagram of the chest did not show any change to account for haemoptysis in 87 patients. Barium meal study of the stomach, oesophagus and duodenum did not show any abnormality in 37 patients with haematemesis.

Management—In 120 patients 12 of whom had haemorrhagic syndrome, antivenom serum was stopped after 24 hours, and on an average 80 ml. of antivenom serum (range 60-120 ml) were necessary for reversal of the clotting defect. In 159 patients whose bleeding continued after 24 hours, blood transfusion was given in addition. These patients needed on an average 140 ml. of antivenom serum (range 120-160 ml.) and on an average 3 units (range 1-4) of blood for stoppage of bleeding and reversal of the clotting defect which occurred within 48 hours. Six patients took up to 72 hours before the bleeding stopped and they needed 250 ml. of antivenom serum and each patient received in addition 5 units of blood. Three patients whose bleeding continued after 72 hours, received 270 ml. of antivenom serum and 6 units of blood before the bleeding stopped and coagulation returned to normal within 4 days of the initiation of treatment. Out of 137 patients whose treatment was started within 24 hours, in 120 the coagulation returned to normal within 24 hours of the initiation of treatment. Out of 159 patients whose coagulation returned to normal within 25-48 hours in 17 the treatment was started within 24 hours of the bite, in 100 between 25 and 48 hours after the bite, in 24 on the 3rd day of the bite, and in 18 on the 4th day of the bite. In 9 patients treatment was started between 5th and 6th day of the bite; in 6 patients bleeding stopped between 49 and 72 hours and in 3 patients between 73 and 96 hours. No patient showed return of coagulation defect once the coagulation returned to normal after treatment with antivenom serum. In 16 patients, who could not receive antivenom serum, blood transfusion was started within 48 hours of the bite. On an average, they needed 4 units of blood before bleeding stopped. Coagulation, however, after temporarily becoming normal again became defective and remained so for an average period of 10 days.

Other symptoms subsided within 3-4 days after the stoppage of bleeding. Ecchymosis took on an average about 14 days to disappear.

Seventeen seriously ill patients were given 2 mg. dexamethasone I.V. 6 hourly. They also included 6 patients who expired.

All patients with pyrexia, local infection and regional lymphadenitis were treated with tetracycline for a period varying between 4 and 8 days. Three patients who developed osteomyelitis had to be treated with antibiotics for a longer period. All patients with haematemesis were given aluminium hydroxide gel till haematemesis stopped. Epistaxis was controlled by firm plugging. Patients with persistent vomiting were given I.V. fluids in addition, to avoid serious dehydration which is liable to occur rapidly in the summer months here. Small blisters were left alone; these usually dried up within a week's time. Large blisters were aspirated and a few drops of streptomycin solution were injected into the blisters after aspiration.

Mortality—Two patients (57 years and 42 years both male) were admitted on the 6th day of the bite in a desperately ill state with peripheral circulatory failure due to blood loss. Both the patients had a non-clotting blood and were given immediate antivenom serum, blood transfusion, dexamethasone, 2 mg. I.V. repeated after 6 hours, and mephentermine to maintain blood pressure. The circulatory failure was irreversible and both the patients died on the day of admission. The snake which had bitten one of the patients was recognised as *Echis carinatus*; the other patient could not kill the snake.

One patient (32 years, male), bitten 5 days before admission, had persistent haematuria for 3 days. On the 5th day of the bite the patient was admitted in a semistuporose and irritable state with signs of subarachnoid haemorrhage. CSF examination confirmed subarachnoid haemorrhage. He had a blood pressure of 86 mm. Hg. systolic at the time of admission and was treated with antivenom serum, blood transfusion and dexamethasone. He expired in the evening, the blood remained non-clotting up to the end. The snake that had bitten this patient was not available. One patient (37 years, female) admitted on the 4th day of the bite with ecchymosis, haematuria and haemoptysis, was treated with antivenom serum, blood transfusion and dexamethasone. Her B.P. at the time of admission was 101/34 mm. Hg. Her Hb was 8 g. per cent, her blood remained non-clotting for 36 hours after the start of treatment, when she suddenly, after complaining of severe splitting heacache, became stuporose. She had marked nuchal rigidity and positive Kernig's sign. Lumbar puncture confirmed subarachnoid haemorrhage, haematuria persisted and blood remained non-clotting. She died on the next day. The snake that had bitten her was identified as *Echis carinatus*. One patient (13 years male) was admitted on the 2nd day of the bite on the right foot. He had haematuria, ecchymosis and non-clotting blood. Forty-eight hours after the bite, he developed swelling of the left forearm and hand. By the evening, the forearm and hand became gangrenous with complete loss of circulation in the hand and forearm. He was treated with antivenom serum, blood transfusion, dexamethasone and I.V. tetracycline. He became rapidly toxic and developed hyperpyrexia and died 72 hours after the initiation of treatment. Gangrene of the left forearm was an unusual occurrence in spite of non-clotting blood. The snake that had bitten this boy was identified as *Echis carinatus*. The same snake had bitten another boy who made complete recovery from mild systemic poisoning. One patient (39 years, female) was admitted on the 3rd day of the bite with persistent haematuria, bleeding from the site of bite, ecchymosis and epistaxis. Her Hb was 7 g. per cent. Antivenom serum was not available. She was treated only with blood transfusion and dexamethasone. She died on the same day after developing a severe bout of haematemesis. The snake that had bitten her was identified as *Echis carinatus*. All these 6 patients died before their coagulation defect could be reversed. All these patients had severe systemic poisoning. The mortality rate in the present study has been 6/310 (1.96 per cent).

Discussion

There was essentially no difference in the clinical picture of the patients bitten by Russell's viper and of those bitten by *Echis carinatus*. The seasonal incidence (91 per cent between May and September) in this study is similar to that reported by Ahuja and Singh (1954), Gupta *et al.* (1960) and Parish (1965, 1966). The maximum incidence of snake bites in summer months in tropical and sub-tropical climates appears to be universal. In viperine bite, local swelling has been emphasised as the most valuable sign of venom dose (Reid *et al.*, 1963a,b; Reid, *loc. cit.*). The presence of local swelling in all the 162 patients (100 per cent) who received local treatment (tourniquet and incision) and only in 86 patients (58 per cent) who had no local treatment, with no appreciable difference in the grade of systemic poisoning in the 2 groups, would indicate that local treatment only aggravates the local swelling without any benefit to the patient. We have stopped giving any local treatment to any of our patients. In view of the absence of local swelling in 42 per cent of patients with systemic poisoning (who did not receive any local treatment) it is difficult to draw any conclusion as to the severity of systemic poisoning from an index of local swelling.

Haemorrhagic syndrome is the most important clinical manifestation of the disease. In view of the fact that only 3 per cent of our patients developed bleeding within the first 6 hours after the bite while the majority of the patients (83 per cent) developed haemorrhages between 7 and 48 hours and 13 per cent developed haemorrhages even after 48 hours of the bite, it is important to keep a patient under close observation till the coagulation defect is reversed. One can expect haemorrhage from any site at any time so long as there is persistent coagulation defect.

Ecchymosis was the most common manifestation but differed from that described by Reid *et al.* (1963a) in that it was typically present in large areas and was not discoid in shape. None of our patients showed a positive tourniquet test. Haematuria was usually very profuse. Haemoptysis was usually mild with only blood-stained sputum. We have not found it advisable to elicit this symptom by asking the patient to cough hard, as has been recommended by Reid (*loc. cit.*). Violent coughing can precipitate a severe haemoptysis in a patient with non-clotting blood.

The most dangerous site of bleeding in the patients of the present series was subarachnoid space. It would appear important to keep a patient in complete bed rest as long as coagulation defect persists to prevent this dangerous complication. The other symptom which needed prompt attention was the fear of death. The best method that we found very successful was to tell the patient that "now a curative antidote is available for the treatment of snake bite poisoning", and with this the anxious patient felt reassured.

The cause of upper abdominal pain could not be found. The possibility of pancreatitis was considered, but in 7 seriously ill patients with severe abdominal pain and vomiting, serum amylase and urinary diastase were found to be normal.

Complications are few in viperine snake bite poisoning. Pyrexia and local infection occurred only in patients who were given local incision. Local infection was not a feature. This has also been the experience of Reid *et al.* (1963a). Local necrosis did not occur in any of our patients. It does not seem to be a feature of bites by Echis or Russell's viper unlike the bite of other snakes like the habu snake, rattle snake, cobra, etc. None of our patients developed tetanus, although only 98 patients (earlier cases) had prophylactic measures. It has not been possible to find an authentic report of tetanus after viperine bites. Tetanus does not occur in viperine snake bite unless the infection is introduced by local incision. None of our patients developed gas gangrene. Only one patient of Echis bite developed gangrene of the left arm (bitten on the right foot) in spite of the non-clotting blood. As far as we are aware, gangrene of a limb, not bitten, has not been described in Echis bites or viperine bites in general. All the 3 pregnant women aborted and had severe bleeding needing blood transfusion unlike Reid *et al.*'s (1963b) patients amongst which only one patient aborted without much bleeding. A very high incidence of hookworm anaemia in our rural population makes it imperative to treat further loss of blood in an already anaemic patient very promptly with blood transfusion. None of our patients showed evidence of haemolysis. This would appear to be due to the absence of direct lytic factor (D.L.F.) in the venom of viperine snakes.

Shock in all the 6 patients was post-haemorrhagic. Delay in treatment and haemorrhage are liable to precipitate post-haemorrhagic peripheral circulatory failure. No patient whose treatment was started within first 48 hours after the bite developed shock. Shock does not seem to be a direct result of envenomation. The only sure criterion of systemic poisoning is the presence of clotting defect (defective clotting or non-clotting blood) which can be determined by the bedside. It was not possible to study the time of onset of clotting defect in all our patients. This was because out of 310 patients only 81 patients had normal clotting at the time of admission. No patient was seen in the present study whose blood, after remaining normal for 24 hours, developed clotting defect later. If clotting defect does not develop within the first 24 hours after the bite, systemic poisoning can be ruled out. There was no correlation between the time of onset of clotting defect and the time of onset of haemorrhagic syndrome. The onset of haemorrhagic syndrome may be delayed up to 72 hours. The delayed onset of haemorrhagic syndrome seems to be related to 'trauma' and physical exertion after snake bite before the clotting defect is reversed. Physical activity after snake bite seems to increase the incidence and severity of bleeding. All patients must, therefore, be confined to complete bed rest before the clotting defect is reversed.

The only effective and relevant treatment of snake bite poisoning, to be advocated in a hospital (Boquet, 1966) is the administration of antivenin. As signs of systemic poisoning are not always clinically evident and as a patient with a non-clotting blood is potentially in danger of developing haemorrhagic syndrome, it is not our practice to delay the administration of antivenin as has been suggested by Reid (*loc. cit.*). Immediately after admission when systemic poisoning is detected by finding defective coagulation antivenin should be administered. Delay in the administration of antivenin will delay the reversal of coagulation defect and is liable to endanger a patient's life by otherwise preventable haemorrhage. In the present study, it is clearly evident that the longer the treatment with antivenin was delayed the more persistent was the coagulation defect, and more was the quantity of antivenin necessary to reverse the defect. In all patients, whose bleeding continued in spite of antivenin beyond 24 hours, blood transfusion had to be given in addition. Besides replacing the blood lost, it shortens the duration of bleeding. In the absence of antivenin blood transfusion by itself can stop the bleeding but the coagulation defect may be reversed only temporarily.

No useful purpose seems to be served by local incision. In the present study, local incision only increased the morbidity in our patients. Snyder (1966) demonstrated the utility of immediate local excision in preventing extensive necrosis and systemic poisoning. Local necrosis is not a feature of the disease in Echis bites or Russell's viper bites. Such a procedure may however be very useful in bites of rattle snake, habu snake, cobra, and water moccasins, etc. which cause extensive local necrosis. In our patients, such a procedure would have been futile because most of our patients came to the hospital after a considerable lapse of time. It would, however, appear reasonable to adopt such a procedure if the patient is treated within the first 30 minutes when it may be the only method available to prevent systemic poisoning even after an effective dose of venom has been injected after the bite. Other procedures like cooling of the limb (Stahnke *et al.*, 1957) and cryotherapy (Lockhart, 1964, 1965) which have been suggested for such bites are liable to cause extensive local necrosis and do not seem to be universally accepted; the report of the sub-committee on accidental poisoning of the American Academy of Pediatrics does not make any recommendation for such procedures (Bierly and Buckley, 1966).

The conclusions drawn by Wig and Vaish (1960) and Gupta *et al.* (*loc. cit.*) do not seem to be based on controlled trials. Conclusions of Hartmann and Windisch (1965) on the use of corticosteroid therapy are also not based on any controlled trials. We have used dexamethasone intravenously in all our seriously ill patients. We have not been able to find any beneficial role of corticosteroids as a specific measure in our patients of snake bite poisoning.

The use of toxoid as a prophylaxis against snake bite poisoning (Sawai, 1960; Miyagi *et al.*, 1966) may eventually prove to be a safe measure against it amongst the labourers and workers exposed to the danger of snake bite. At present, however, the treatment of viperine snake bite poisoning is as follows :

Bed rest, antivenin and replacement of blood lost in haemorhage by adequate and as far as possible fresh blood.

SUMMARY

Three hundred and ten patients of viperine snake bite disease have been studied in S.M.G.S. Hospital, Jammu during the years 1968-1971. 117 patients were bitten by *Echis carinata* and 4 by *Vipera russelli*. In the rest of the patients the snake was not available for identification. In this paper the clinical features of the disease have been presented with special emphasis on the haemorrhagic syndrome. All the patients were treated with antivenin serum and some with blood transfusion in addition, except 17 patients who could not be given antivenin serum due to non-availability. It has been concluded from this study that local treatment (incision and application of tourniquet) does not serve any useful purpose and that when systemic poisoning has occurred in viperine snake bite, the rational treatment is: (i) Bed rest, (ii) antivenin and (iii) replacement of blood lost due to haemorrhage by adequate and as far as possible fresh blood transfusion.

ACKNOWLEDGMENT

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2

Modified Suprapubic Prostatectomy

(A report of 30 cases)

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Millin's prostatectomy is technically difficult, whereas trans-urethral surgery requires specialised skill and equipment. Sen (1960, 1965) introduced a modification of suprapubic transvesical prostatectomy in which he used a figure of '8' suture to obliterate the prostatic fossa, minimising haemorrhage and claiming good results. The authors have used a modification of Freyer's prostatectomy, in which the prostatic fossa is obliterated by a purse string suture, and it has been found to be a very simple procedure and can be widely practised by the general surgeon.

MATERIAL AND METHOD

Thirty cases of prostatic obstruction admitted to the 3rd Surgical Service, Medical College, Patiala, were subjected to one-stage prostatectomy by the new method. Out of these, 24 per cent had acute retention of urine, 40 per cent had chronic retention, and 36 per cent presented with increased frequency of micturition. Each patient was investigated for haemoglobin, bleeding and clotting time and blood urea. Urine analysis was done in all cases, as also systemic check up. Urine culture was done only in those cases where there was evidence of infection in the urine. I.V.P. was not done in any case. An indwelling Gibbon's catheter was used for drainage only in those cases who had acute retention, till the operation was arranged. The cases with urinary tract infection were given a course of appropriate drug therapy before the operation.

Technique—After transvesical prostatectomy the fossa was packed with gauze for 7 minutes; meanwhile bilateral vasectomy was carried out in every case. After 7 minutes a self-retaining bladder

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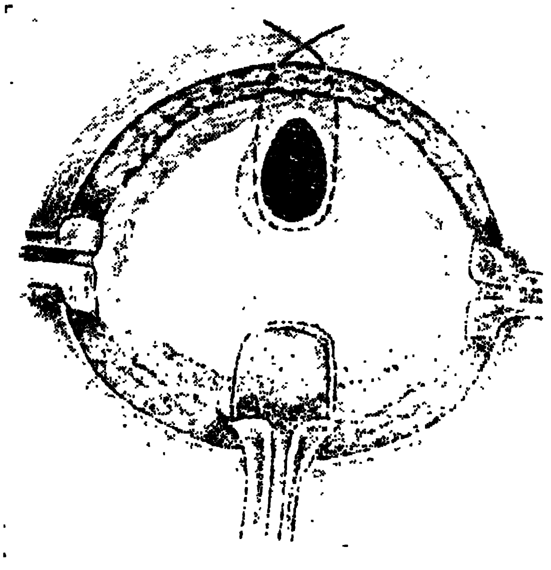

FIG. 1—SHOWING THE METHOD OF PASSING THE HAEMOSTATIC STITCH AROUND THE PROSTATIC CAVITY

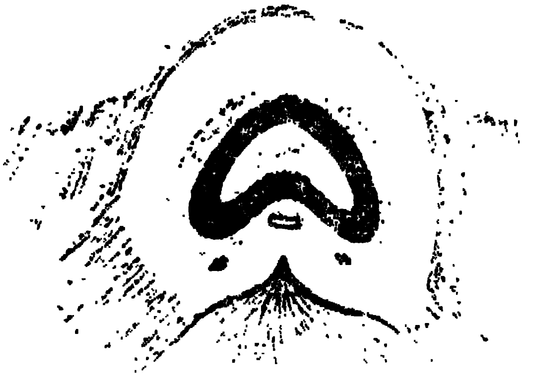

FIG. 2—SHOWING THE SHAPE OF PROSTATIC CAVITY AFTER TYING THE HAEMOSTATIC STITCH

retractor was inserted and the packs removed. Foley's catheter No. 20, of 30 ml. balloon capacity was introduced per urethra and drawn out of the bladder with the help of a haemostat. Then the posterior lip of the prostatic fossa was held with a pair of Allis forceps and a medium size round body needle carrying No. 1 plain catgut was passed to one side of the Allis forceps. It was passed through the side of the prostatic capsule and brought out into the retropubic space. The short end of the catgut in the retropubic space was clipped by a haemostat and the long end of the catgut in the bladder was threaded on the needle and the same procedure was repeated on the other side of the Allis forceps. The 2 ends of the catgut came to lie in the retropubic space. The Allis forceps was released from the posterior lip of the fossa and the 2 ends of the catgut were tied together in the retropubic space around the Foley's catheter. Thus the catgut formed a figure of 'O' around the prostatic fossa and obliterated it over the Foley's catheter. Figs. 1, 2 are the diagrammatic representation of the method of passing the haemostatic stitch. The balloon of the Foley's catheter while inflated with 15 ml. of water came to lie inside the bladder cavity. Primary closure of the bladder was done with 00 chromic catgut and the wound closed in layers with a corrugated rubber drain in the retropubic space. During the procedure, the bleeding which occurred was mopped away by dry gauze pieces to account for the blood loss. Foley's catheter was attached to a closed drainage system. Post-operatively every patient received 2 bottles of 5 per cent dextrose and one bottle of normal saline followed by 300 ml. of 20 per cent mannitol to induce diuresis. Foley's catheter was removed on the 5th or 6th postoperative day and the patient was encouraged early ambulation. Every patient was followed up for 3 months and observation made regarding urinary stream, urinary infection and any other sequelae.

Estimation of operative blood loss was done by the gravimetric method. Weighed sponges and gauze pieces were used to soak the blood loss during operation. These were re-weighed to determine the amount of operative blood loss.

OBSERVATIONS

The youngest patient was 50 years old and the oldest was 80 years. The average age in the series was 65.9 years. Six cases (20 per cent) belonged to the age group of 50-60 years, 18 cases (60 per cent) to age group 61-70 years and 6 cases (20 per cent) to age group 71-80 years.

Operation time—The minimum time taken to perform the operation was 40 minutes and the maximum was 75 minutes. The average time taken was 50 minutes.

Operative blood loss—Blood loss encountered in the present technique was as follows: 60-150 ml. in 16 (53 per cent) cases, 151-260 ml. in 10 (33 per cent) cases and 261-350 ml. in 4 (14 per cent) cases. The average blood loss in 30 cases was 180 ml. only. One case required blood transfusion.

Postoperative blood loss—The average time of clearance of urine of blood was as follows : 12 hours in 26 (86.7 per cent) cases, 24 hours in 3 (10 per cent) cases and 36 hours in 1 (3.3 per cent) case.

Thus in a majority of cases the catheter drainage was clear of blood within 12 hours.

Postoperative Complications—Table 1 shows the postoperative complications.

TABLE 1—SHOWING POSTOPERATIVE COMPLICATIONS

Complications	No. of cases	Percentage
Haemorrhage		
(a) reactionary	--	—
(b) secondary	---	--
Mortality	—	-
Wound gaping	1	3.3
Suprapubic fistula	2	6.6
Urinary incontinence	4	13.2
Epididymo-orchitis	1	3.3
Urinary tract infection	5	16.5
Uraemia	- -	---
Urethritis	3	10
Osteitis pubis	—	—
Bladder neck stenosis	3	10

The most important single postoperative complication encountered during this study was urinary tract infection. In the postoperative period 16.5 per cent patients were found to have urinary tract infection; of these 13.4 per cent were those who were initially infected in the preoperative period. At 3 months' follow up, 13.4 per cent were persistently having urinary tract infection. The most common infecting organisms were *E. coli*, *Klebsiella aerogenes*, *Streptococcus faecalis* and *Pseudomonas pyocyaneus*. Urinary tract infection was found to be responsible for other postoperative complications, such as, wound gaping, suprapubic fistula, epididymo-orchitis and urethritis. Ten per cent patients complained of difficulty in micturition at 3 months' follow up. It was found to be due to bladder neck stenosis. All these patients had urinary tract infection in addition.

Postoperative hospital stay—The postoperative hospital stay was as follows : 7-8 days in 25 (83.4 per cent) cases, 9-10 days in 3 (10 per cent) cases, 11 days in 1 (3.3 per cent) case and 22 days in 1 (3.3 per cent) case. The average postoperative hospital stay was 8.1 days.

DISCUSSION

The concept of separation of prostatic fossa from the vesical cavity began with Lower (1927) and Harris (1930). The idea was to limit blood loss from the prostatic fossa after prostatic adenomectomy as the morbidity following this operation is directly related to blood loss. Packing of prostatic fossa by roll gauze to prevent postoperative blood loss is still in vogue in many institutions of our country. The packing, albeit, prevents the blood loss, the incidence of urinary tract infection is alarming; to illustrate, out of 321 reviewed cases of Freyer's prostatectomy done in our unit over the past 4 years, postoperative urinary tract infection was present in 78 per cent of the cases.

Sen (1960) devised a technique of arresting the haemorrhage from the prostatic fossa without any packing. He used a figure of '8' stitch of plain catgut to close the prostatic fossa over a wide bore Foley's catheter. He practised it not only in one-stage prostatectomy but also in 2-stage operations. In the latter he used a Malecot catheter for suprapubic vesical drainage in addition to a urethral catheter. Primary closure of the bladder was done in all cases of one-stage prostatectomy. He found that the method was excellent to prevent postoperative blood loss, and thus in 1965 he further reviewed the technique in 105 cases. In his later study there were 6 deaths, but none was due to haemorrhage or uraemia. He practised the procedure while carrying out 67 single stage and 38 2-stage operations. Out of this series there was no incidence of primary haemorrhage, 27 patients had incontinence of urine, 15 had suprapubic fistula, one had recto-prostatic fistula and 5 developed uraemia in the postoperative period. Incidence of bladder neck stenosis was nil.

Cohen *et al.* (1969) used a removable purse string suture of the vesical neck during suprapubic prostatectomy. The 2 ends of the zero plain catgut purse string suture were tightened over a Foley's catheter and were passed from the retropubic space through the muscle, fascia and skin in as direct a fashion as possible and then tied over a plastic bridge in an infra-incisional position, prior to primary closure of the bladder. It was removed in 24 hours, at which time the catheter drainage was usually clear. They observed an average hospital stay of 9.8 days in 50 cases, who were operated by this technique as compared to a stay of 13.2 days in other 50 cases of open prostatectomy.

Beck and Gaudin (1970) while practising a modified technique of closing the bladder neck and prostatic fossa in 30 cases, observed an average postoperative blood loss of 230 ml. as compared to 363 ml. of postoperative blood loss in retropubic prostatectomy. The technique under review not only effectively controls the blood loss after enucleation of the prostate but also is associated with a lower incidence of postoperative urinary tract infection and associated complications. Primary closure of the bladder carries the benefit of absence of suprapubic leakage of urine in the postoperative period and shortening the hospital stay. Contrary to expectation, the incidence of bladder neck stenosis is not high, because of the presence of a wide bore catheter in the bladder and the use of a plain catgut suture. In the present study the incidence of bladder neck stenosis was 10 per cent as compared to none in Sen's series of 105 cases.

As the prostatic fossa is shut off from the vesical cavity, any bleeding which takes place, accumulates in the narrow cavity around the catheter and when the clot organises, the urethral continuity is re-established. The clot itself acts as a haemostatic agent. A similar process occurs in retropubic prostatectomy, where the blood clots in the cavity around the catheter. But the present method is technically easier than the retropubic method. The method can be employed even in 2-stage operation in suitable cases (Sen, 1965). The method is excellent for a general surgeon. In the present series of 30 cases, haemorrhage was singularly absent. Postoperatively, the urine was found to be clear of blood within 12 hours in 86.3 per cent cases and in all cases by 26 hours. The purse string suture is thus very effective in the control of haemorrhage. However, there was a fair incidence of urinary tract infection, of the order of 16.5 per cent. But this was mainly due to the fact that operation was undertaken even in those cases who were having infection in the preoperative period. Complications like wound gaping, suprapubic fistula, epididymo-orchitis were related to urinary tract infection. The results of the present technique can thus further be improved by selecting uninfected cases or the provision of meticulous closed drainage which was often found to be lacking in the present series.

SUMMARY AND CONCLUSIONS

A simple and effective method of haemostasis after prostatic adenomectomy in 30 cases is reviewed. The average blood loss at the time of operation was 180 ml. The catheter drainage was clear of blood within 12 hours in most of the cases. The most significant postoperative complication was urinary tract infection which occurred in 16.5 per cent of all cases. Complications like suprapubic fistula, wound gaping, epididymo-orchitis were found to be related to urinary tract infection. The average hospital stay was 8.4 days. The method is ideal for one-stage prostatectomy and is recommended as a simple procedure.

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CASE NOTES

1

Lipoma of the Uterus

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Lipoma is a rare tumour of the uterus (Kanter and Zummo, 1956; Novak and Novak, 1961; Gonzalez-Angulo and Kaufmann, 1962). It may occur either in pure form consisting of adipose tissue with minimal supporting stroma, or as mixed tumours containing, in addition, muscle, fibrous tissue or cartilage. Ellis (1906), analysing the uterine tumours could find only 4 true lipomas. Brandfass and Everst-Suarez (1955) reviewed the world literature and found only 35 pure lipomas and have added a case of lipoma in a 72-year-old woman who also had leiomyoma. A few more cases have been added to the literature (Gupta and Hunter, 1964; Bhaskaran *et al.*, 1972). A case of lipoma of the uterus is recorded below in view of the extreme rarity of such tumours.

CASE REPORT

A 60 year old female was admitted to the gynaecology wards of the Government General Hospital, Kurnool, with the complaints of a mass protruding out per vagina, of one year's duration. It was associated with white discharge and the patient had dull, boring low backache.

She attained menarche at the age of 13 years. Her menstrual cycles were regular, 3/30 days with moderate flow and were not associated with pain. She attained menopause 13 years ago. She had a married life of 40 years having 4 children, of whom 2 were alive.

On examination, the cervix was seen outside the vaginal introitus and was ulcerated. The uterus was found to be retroverted and bulky. Under spinal anaesthesia vaginal hysterectomy and repair was performed. The postoperative course was uneventful.

Gross pathology—The specimen consisted of uterus and cervix. The uterus was bulky and on cutting open, there was a yellowish mass situated right in the substance of the myometrium in the body of the uterus measuring 6 × 5 cm. (Fig. 1). The cervix was hypertrophied, thickened and ulcerated.

Histopathology Multiple sections, studied from the uterus, showed typical lipoma composed of lobules of adult fat cells separated by vascularised connective tissue stroma (Fig. 2). The capsule was formed by the compressed smooth muscle cells and fibrous tissue. Endome-

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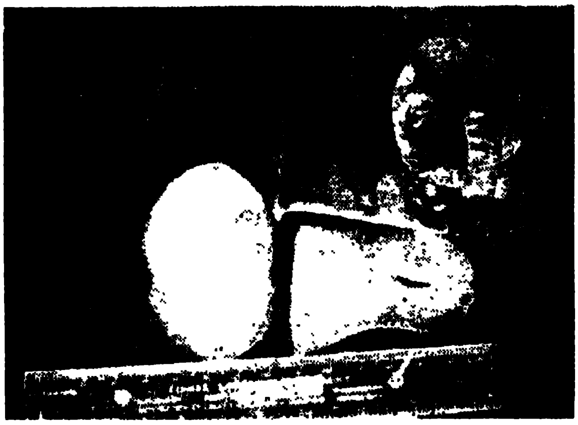

FIG. 1- SHOWING THE UTERUS AFTER REMOVAL WITH CIRCUMSCRIBED LIPOMA IN THE BODY

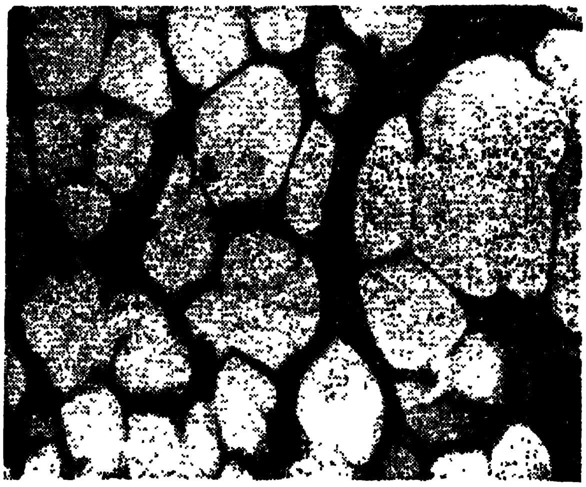

FIG. 2—SHOWING PHOTOMICROGRAPH WITH FAT CELLS AND MINIMAL CONNECTIVE TISSUE STROMA (*H & E×100*)

trial glands were atrophic with senile cystic dilatation. The cervix showed chronic ulceration with keratinisation of the surface epithelium and multiple nebothian follicles.

COMMENT

Lipoma of the uterus rarely occurs as an isolated tumour and is frequently associated with leiomyoma (Reich and Nechtow, 1946). These tumours occur most frequently in post menopausal women, particularly in the 5th and 6th decades and are usually located in the uterine corpus (Novak and Woodruff, 1967).

The histogenesis of these tumours is debatable. They are believed to arise from embryonic rests of lipoblasts (Elkin and Haythorn, 1917), metaplasia of muscle cells into fat cells (Brandfass and Everst-Suarez, *loc. cit.*), metaplasia of primitive connective tissue into fat cells (Novak and Novak *loc. cit.*), from perivascular fat cells accompanying the blood vessels (Gonzalez-Angulo and Kaufmann, *loc. cit.*). Mayer (cited by Novak and Novak, *loc. cit.*) believes that they are true fat cells arising from the embryonic mesoderm.

SUMMARY

A pure lipoma of the uterus in a female of 60 years is reported with a brief review of literature together with a note on the histogenesis of these tumours.

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2

Appendicular Perforation due to Ascaris Lumbricoides

S. N. SINHA*, B. N. SINHA**

Ascaris lumbricoides is distributed widely all over the world but is extremely common in warm climate and is believed to be the most common parasite found in human beings. The adult worm normally lives in human small intestine, where the fertilised female lays her eggs at a rate up to 2 million per day. Dangerous complications may arise from the 'wander lust' of the worms and their tendency to explore orifices, ducts and cavities (Louw, 1966). They have been seen in appendix, common bile duct, pancreatic duct and eustachian tube.

In this paper a case of abdominal emergency caused by *A. lumbricoides* is presented where appendicular perforation resulted in generalised peritonitis with free living and dead worms in the peritoneal cavity.

CASE REPORT

A 4-year-old girl was admitted with the complaints of generalised abdominal pain, high fever and vomiting of about 8 hours' duration. There was a definite history of

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**M.S. (Bihar), Professor of Surgery

taking some drugs, probably a vermifuge or a purgative, a few days ago.

On examination, she was in acute distress and toxic with pulse rate 160/minute, temperature 101° F. The tongue was coated and dry. The abdomen was distended, rigid, silent and very tender on palpation in all quadrants, more so in right iliac fossa. Urgent plain x-ray of the abdomen in sitting position showed distended small bowel with scanty air-fluid levels, and wisp like parallel translucent lines but no gas under the diaphragm (Fig. 1). Provisional diagnosis of appendicular perforation was made.

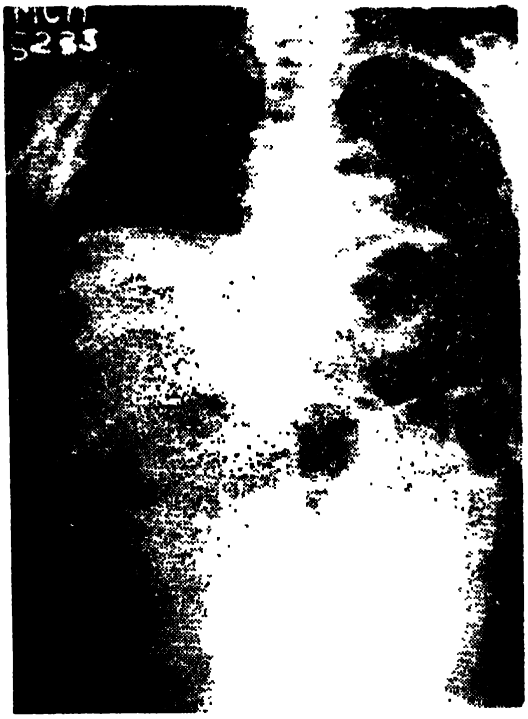

Fig. 1—Showing Plain X-ray of Abdomen with Distended Bowels. Scanty Air-fluid Levels and Absence of Gas Under Diaphragm

Operation—After resuscitation, laparotomy was performed the same evening through a right paramedian incision. On opening the peritoneum numerous living *A. lumbricoides* were seen moving out through the wound like the tentacles of a sea-anemone and the sight was really amazing. There were gas and purulent fluid in the peritoneal cavity and many more dead roundworms. A total of 27 worms were picked out from various places inside the peritoneal cavity. The entire small and large bowel was examined and a perforation of 1 cm diameter was found at the root of the appendix, which was itself congested and oedematous. Appendicectomy was performed as usual and an omental patch was given over buried stump. Many more worms were found in the jejunum and ileum: they were dispersed and left over in the gut as such. Two peritoneal drains were given and the abdomen was closed in layers.

The postoperative period was uneventful. She passed one worm through mouth on the 3rd postoperative day and again on the 5th day with stool. She was given piperazine in recommended dosage in the ward with good results and was discharged from the hospital on the 14th day. Follow up had been quite satisfactory.

Discussion

Louw (*loc. cit.*) reported only 2 cases with symptoms of acute appendicitis due to obstruction of the lumen of appendix by worm in his series of 731 cases in children, aged 1 to 12 years. In both cases perforation occurred at the tip of the appendix with escape of worm in the peritoneal cavity, but both patients died within 36 hours of hospitalisation.

Dickson and Cole (1964) reported cases of ileal perforation with *A. lumbricoides* in the peritoneal cavity in cases of typhoid fever.

Van Rensburg and Kark (1958) reported Meckel's and caecal diverticulitis, with perforation and escape of *A. lumbricoides* in the peritoneal cavity.

Navarranne (1949) reported that *A. lumbricoides* had caused postoperative intestinal anastomosis disruption between the 3rd and the 6th days resulting in peritonitis.

These series and the one reported herein, pose the possibility of intestinal perforation by *A. lumbricoides*. That they can perforate normal bowel wall seems very unlikely, but they appear to be capable of producing acute inflammation with damage to the bowel wall. This damaged wall may then be perforated by vigorous effort of these worms. As can be well judged a preoperative diagnosis of *Ascaris lumbricoides* causing appendicular perforation could not be made, but perforated appendix was diagnosed on the basis of physical signs supported by the history of having been given purgative or vermifuge. Of course the 'wisp like' radio-translucent lines in plain x-ray of the abdomen as observed earlier (Bean, 1965; Louw, *loc. cit.*, Waller and Othersen, 1970), suggested a probable diagnosis of association of *A. lumbricoides*.

Summary

A case of appendicular perforation due to *Ascaris lumbricoides* resulting in generalised peritonitis in a girl of 4 years where preoperative diagnosis of obstruction by roundworms was made, is reported. The case was treated surgically with good result. The literature on the subject is briefly reviewed.

Acknowledgment

We extend our thanks to Dr. B Singh, Superintendent, Rajendra Medical College Hospital, Ranchi, for his kind permission to publish the case record and to Dr. P. N. Jayaswal, Professor and Head of the Department of Surgery, for guidance in publishing the case report.

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JOURNAL OF THE
INDIAN MEDICAL ASSOCIATION

CALCUTTA, DECEMBER 16, 1974

Ophitoxaemia A Perpetual Challenge

Since the dawn of civilisation, snakes have inspired a mystic feeling of good and evil in human mind. It has appeared in various mythology either as demon or as God. In Greek mythology it represented Goddess Hygiea and was worshipped along with Asclepius, the God of Health. The tradition is carried over to the modern time and the snake has found a place in the symbol of medical profession throughout the world.

In India, popular folklores and deep-rooted superstitions have put the asp in some places at the height of God and somewhere at the depth of hell as the evil incarnate. By and large, no population is free from the fear of this little creature. This fear, which causes many deaths[1] has deep root of origin in our ignorance about this reptilian species and our natural abhorrence towards them. Surprisingly enough, in spite of great many number of poisoning by venomous snake bite, particularly in this part of the world, this chapter of pathology is most insufficiently considered either in medical literature or in medical teaching resulting in considerable ignorance of medical professionals, who have to treat such cases of ophitoxaemia. This pitiable condition will have to be removed. The subject of snake bite poisoning should be compulsory in the undergraduate curriculum. The medical officers serving in the rural areas should be provided with printed instructions like those of Army[2] regarding the modern treatment of snake bite and the rural health centres should be properly equipped to treat such cases. Perhaps that will be the most effective way to meet this perpetual challenge.

Every year, about 10 to 15 thousand people die of snake envenomation in this subcontinent. The maximum share is contributed by West Bengal[3]. This death rate is directly proportional to the abundance of snakes in that area. In India, snakes are found everywhere, from 12,000 feet altitude of the Himalayas down to Cape Comorin. But different areas have different species preponderance. This difference in the species variety has tremendous clinical significance. A doctor, while treating a snake bite case in a particular area must know the type of snake preponderant over that area and also know the clinical syndrome produced by its venom. This knowledge of identification of the species and the clinical syndrome is not 'all academic'[4] in our country. It is essential for the treatment of the patient as well as for the doctor to have confidence in treating such cases.

In India, we have only 4 virulent types of poisonous land-snakes of any clinical importance. These types are cobras, kraits, Russell's viper and *Echis carinata*. They have, of course, many subvarieties. For example, cobras have 2 subvarieties—ordinary and king cobra. Similarly kraits have ten different subvarieties, mostly found in Bengal and Assam. In this regard, Russell's viper and Echis are better, they have no subvarieties. Though both of them belong to the viper family of pitless variety, they differ very much from each other in their nature and habitat. Besides these 4 types, there are 7 types of poisonous coral snakes (not so poisonous to man) and 29 types of highly poisonous sea-snakes (no death has yet been recorded)[5]. In all there are about

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[1] CHARPUREY, K. G.—Snakes of India and Pakistan, 5th ed., 1962, Popular Prakasan, Bombay, p. 110.

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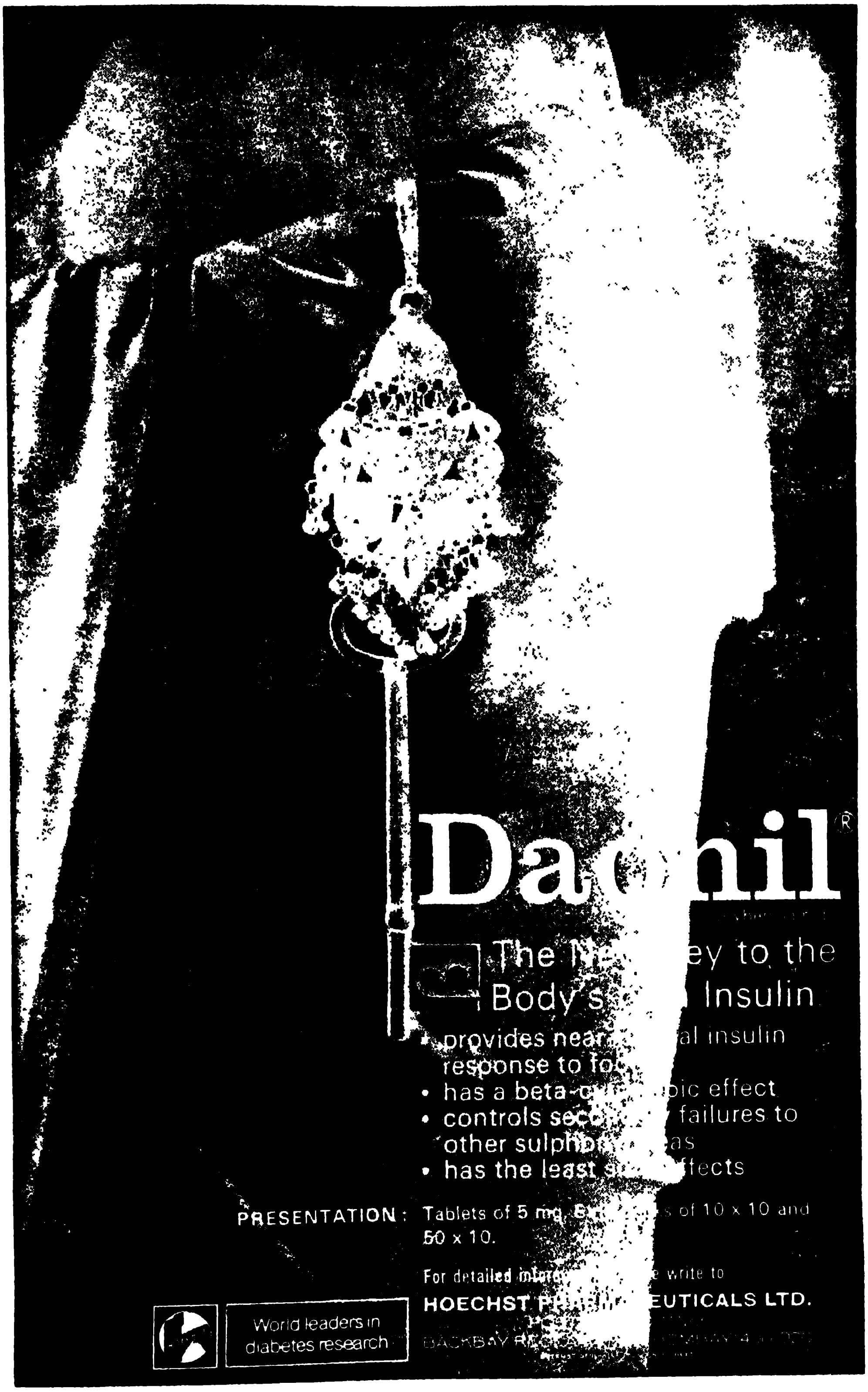
[4] REID, H. A.—*Brit. Med. J.*, 3: 359, 1968.

[5] CHARPUREY, K. G.—Snakes of India and Pakistan, 5th ed., 1962, Popular Prakasan, Bombay, p. 26.



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Practitioner, 1960, 185, 89.

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330 varieties of snakes both poisonous and non-poisonous, recorded in this subcontinent out of total 1,700 varieties of snakes in the whole world[6]. One can imagine how very difficult it will be to identify snakes in India. It requires considerable knowledge and experience about this ophidian family.

Furthermore, identification of the offending snake is usually very difficult as (1) it is seldom caught by the victim or his associates (2) even when it is brought to the hospital, the head is usually battered so badly that it is very difficult to identify the snake. The author of the article on viper bite, published elsewhere in this journal[7] was lucky to find the snakes with 39 per cent of his cases, but many will be less fortunate. So for an attending doctor the burning question will remain to be 'whether it is a poisonous snake or not ?' The answer will be written on the victim's bitten part and also in his behaviour after the bite hence the importance of clinical knowledge of ophitoxaemia.

All venomous bites cause severe pain specially of cobra, krait and Russell's viper[8], but many authorities put more importance on the local reaction of bitten part[9]. Pain is not so severe in cases of Echis bite[7-10]. Very rarely, the systemic manifestations become the presenting feature specially when the bite is on the vein directly. Those cases are usually fatal.

Lot of importance has been put on the local reactions. Swelling of the bitten part is another sign common to all types of envenomation[7,11]. It is more prominent and slower in appearance in cases of viperine bite. In cobra and krait bite, the local reaction is quicker in appearance, the oedema is less but the tissue necrosis as shown by blackening of the skin around the bite area is characteristic[1]. There is no controversy about one point that the local reaction is adversely influenced by the bad first aid management like tight tourniquet, incision and suction—universally followed in this country. It makes clinical diagnosis more difficult and worsens the prognosis by causing local infection[2,3].

The symptoms of systemic poisoning and the speed by which they appear throw more light on the diagnosis of type of envenomation. No doubt, the fright and the fear of death may be so pronounced in these patients that it may overshadow the real clinical picture. But it requires little experience on the part of the doctor to calm the patient and find out the significant changes due to poisoning. The speed of appearance of such symptoms is of tremendous clinical importance. Elapid envenomation (kraits and cobras) is very quick in its onset. It is a matter of few hours whereas viperine bites produce systemic effect in matter of days. Systemic effects of elapid poisoning is mainly neurological. Ptosis, nasal intonation, excessive frothing in the mouth, drowsiness and paralysis are the initial symptoms of such cases. Viper poisons produce their systemic action by acting on the clotting mechanism of the body. Initial thrombin production results in severe defibrination syndrome which causes various haemorrhagic manifestations like haemoptysis, ecchymoses, haematuria etc. Shock and coma are symptoms of severe poisoning. In short, it will be wise to remember that the patients die very quickly within a few hours or a day from respiratory paralysis or cardiac failure in elapid poisoning, whereas in viper bites the patient lingers for days, sometimes weeks and ultimately dies of haemorrhagic disorders. If any patient can survive the respiratory paralysis for a day or so, he is sure to recover from elapid bite. But viper poisoning is more treacherous in that respect, and Russell's viper is indeed the worst enemy of human being[10].

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[6] GHARPUREY, K. G.—Snakes of India and Pakistan, 5th ed., 1962, Popular Prakasan, Bombay, p. 23.

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Increasing attention of the medical world and more research in this neglected field has yielded newer approach and better results in the treatment of ophitoxaemia. The good old methods of first aid treatment as already discussed earlier should mostly be discarded except the ligature, which should be applied firmly but not tightly above the bite preferably on a single bone. More attention should be given towards the reassurance of the patient so that he does not die of fright. Immobilisation of the part and complete rest of the patient are extremely helpful as they reduce the circulatory dispersal of the venom[11]. Local cold application or cryotherapy when possible is better than suction and incision as it prevents local and systemic spread of the venom[12,13]. It also reduces pain and there is no chance of infection. The most important aspect of first aid management is to transfer the re-assured patient to the nearest hospital in the shortest time with least exertion of the patient.

The hospital management has undergone thorough renovation. Although polyvalent antivenin is still the drug of choice, its use in all cases is not without controversy. Its routine use, specially I.V. in all cases is not justifiable as deaths from severe anaphylactic shock is not uncommon. But its judicious use in all cases of 'systemic poisoning' leaves no question'. In such cases it will have to be used in full doses and preferably by I.V. route. Sedation with antihistaminics and the use of steroid umbrella before the I.V. injection of antivenin are wise steps to prevent the dangerous anaphylactic reactions. Treatment up to this, is common for all types of poisoning and is not sufficient to save lives. Beyond this the treatment becomes more sophisticated and specific in 2 types of poisoning, i.e., elapid and viperine.

All out efforts to prevent respiratory paralysis due to the neurotoxic venom is required in elapid bites. Respiration has to be maintained by respirators till the patient starts recovering. Recent work of Banerjee[14] has proved the efficacy of neostigmine-atropine combination in the treatment of elapid bite. This drug combination antagonises the venom at the tissue level where antivenin fails to work. This has definitely removed the deficiency present in the conventional therapy with antisera alone.

Similarly in viper bite, the severe defibrination syndrome produced by the initial thrombin production by the venom, is combated by initial anticoagulant therapy with heparin followed by supportive fibrinogen transfusion[14]. This newer approach has definitely reduced the death rate, when it is used as an adjunct to conventional therapy. This therapy, he has found, not only hastens recovery but prevents possible fatalities from complications like diffuse systemic intravascular thrombosis induced by fibrino-coagulopathy. Transfusion of fresh blood does not always prevent this complication specially in Russell's viper bite cases but may be of use in milder poisoning.

In modern era, man has not only conquered this venomous killer but now is trying to use its venom as the answer to the more dangerous challenge thrown by myocardial infarction—a malady of intravascular clotting. The viper venom perhaps in near future will turn out to be nectar and the myth of Goddess Hygiea will ultimately become true when the viper venom by its anticoagulant virtue will solve the problem of myocardial infarction—the greatest killer of modern time.

PINAKI BANERJEA

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CURRENT MEDICAL LITERATURE

Oncogenesis—Morphogenesis

Schwind J. V. (*Oncology*, **29**: 172, 1974) from Pueblo Str., Santa Barbara, states :

Neoplasms may be the result of the re-establishment of a phylogenetically primitive line of cells rather than the direct result of cell alteration by environmental factors. Cells with primitive potential are continually appearing in the ordinary process of tissue repair, but these cells are destroyed by an intact immunosurveillance system. Any agent which promotes prolonged cell proliferation, or depresses the immunosurveillance system, causes the production of proportionately larger numbers of these regressive cells which overwhelm the immunological protective mechanism. Since these cells possess more primitive enzymatic and metabolic processes, they may become established as unequal competitors in a common nutritional system.

Eighty-four years ago, Cohnheim proposed a theory of carcinogenesis based upon the similarity of neoplastic tissue of embryonic cells. His idea that cancer was the result of the reactivation of embryonic cell rests never was proved because no such embryonic cells could ever be demonstrated in normal tissue. However, in recent years with the development of immuno-electrophoretic techniques his theory appears more credible since many tumours have been found to contain antigens similar to those of embryonic tissues. Carcino-embryonic antigens have been demonstrated in tumours of the kidney mammary gland, lung and other tissues.

It is proposed here that neoplasms are the result of the re-establishment of cell lines from phylogenetic ancestors. Regressive cells are continually appearing in the course of regular mitosis but are detected and destroyed by an intact immunosurveillance system. Every mitosing cell has the potentiality to reproduce any other cell in the body. Even as highly specialised a cell as an intestinal cell can reproduce an entire new body. Tumour cells also will assume functions of unrelated cells—lung cancer may produce insulin, kidney tumours may produce parathyroid hormone, brain tumours may produce bone cartilage, etc.

It may be possible to develop methods of controlling human cancer by taking advantage of the immunologic similarity of neoplastic tissue to embryonic tissue or even to the antigens of prehuman ancestral types represented by these various embryonic stages. Perhaps a more accurate term for these so-called carcino-embryonic antigens would be carcinophylogenic antigens. The findings of Hellf that mouse mammary tumours could be made to regress by the use of amphibian tissue antigens may be the beginning of a whole new exciting era of investigation as we begin to think of tumour cells as continually appearing regressive evolutionary sports with which the body has to cope all of its life.

Myocardial Zinc Metabolism in Experimental Myocardial Infarction

Lindeman, Robert D., Yunice, Aniece A., Baxter, Donald J., Miller, Leonard R. and Nordquist, John (*J. Lab. Clin. Med.*, **81**: 194, 1973) from the Medical Service, Oklahoma City Veterans Administration Hospital and Departments of Medicine and Physiology, University of Oklahoma College of Medicine, Oklahoma City, Oklahoma, write :

This study was undertaken to prove or otherwise the hypothesis that fall in zinc concentration in plasma following acute myocardial infarction is due to mobilisation of zinc to the site of tissue repair at the site of injury. Artificial myocardial infarction was produced in dogs by tying the left anterior descending coronary artery. The infarct, peri-infarct and normal myocardial tissues were removed after varying periods. Radioactive zinc was injected intravenously 24 hours prior to death. Some animals were fed supplemental zinc (440 mg.) for 5 days beginning 1 day prior to operation. Estimations included those of sodium potassium, calcium, magnesium (bulk cations), zinc, copper, manganese, cadmium, (trace elements), DNA in the 3 types of tissues removed; radioactive zinc uptake in intact and subcellular fractions. Light microscopic studies were carried out. Electronic microscopic studies of the nuclear and mitochondrial subcellular fractions as also microsomal and soluble protein subcellular fractions from central infarct and normal control myocardium were also carried out.

Analysis of results tended to show that there were small decreases in zinc concentration and radioactive zinc uptake in infarcted compared to normal myocardium. However, increases in both were observed in the subcellular fraction where synthesis and storage of metalloenzymes occur. Zinc concentration per microgram ash weight of tissue (estimated in 4 subcellular fractions in 5 animals) were increased in all fractions in infarcted compared to normal myocardium. Oral zinc supplementation failed to increase zinc concentration in either infarcted or normal myocardium. The authors are of the view that further studies with larger amounts of supplemental zinc are required to determine if supplemental zinc has any effect on the rate or quality of healing.

Peptic Ulcer Disease

Deckelabum, R. J., Roy, C. C., Lazaroff, J. L. and Morin, C. L. (*Canadian Med. Ass. J.*, **111**: 225, 1974) from the Departments of Pediatrics, Radiology and Medicine, The Montreal Children's Hospital, l'Hospital Sainte-Justine and the Royal Victoria Hospital, McGill University and l'Universite de Montreal, observe :

Seventy three children with peptic ulcer have been admitted to The Montreal Children's Hospital and l'Hospital Sainte-Justine over the past 11 years. The primary ulcer group comprised 39 duodenal and 9 gastric ulcers, repeat contrast studies were necessary to demonstrate a crater in 25 per cent. Vomiting was especially prominent in the younger patients (1 month to 6 years). Pain was present in the majority of older patients (6 to 18 years) but was considered "typical" in no more than one third. Bleeding occurred more commonly in the older children but 5 had occult bleeding only. There was a positive family history in 11 children with primary duodenal ulcers but in none of those with gastric ulcers. Follow up in 34 cases with primary ulcers showed that close to two-thirds of the older children have had recurrent problems. Bleeding and/or perforation was the most common mode of presentation in 25 cases of secondary ulcers. Corticosteroids and increased intracranial pressure were the most frequently associated factors, the younger age group being at greater risk.

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ABBREVIATION USED

C—Correspondence; *CL*—Current Medical Literature; *CN*—Case Note; *CT*—Current Topic; *Ed.*—Editorial; *NN*—Notes and News; *OP*—Originals and Papers; *PS*—Practitioners' Series

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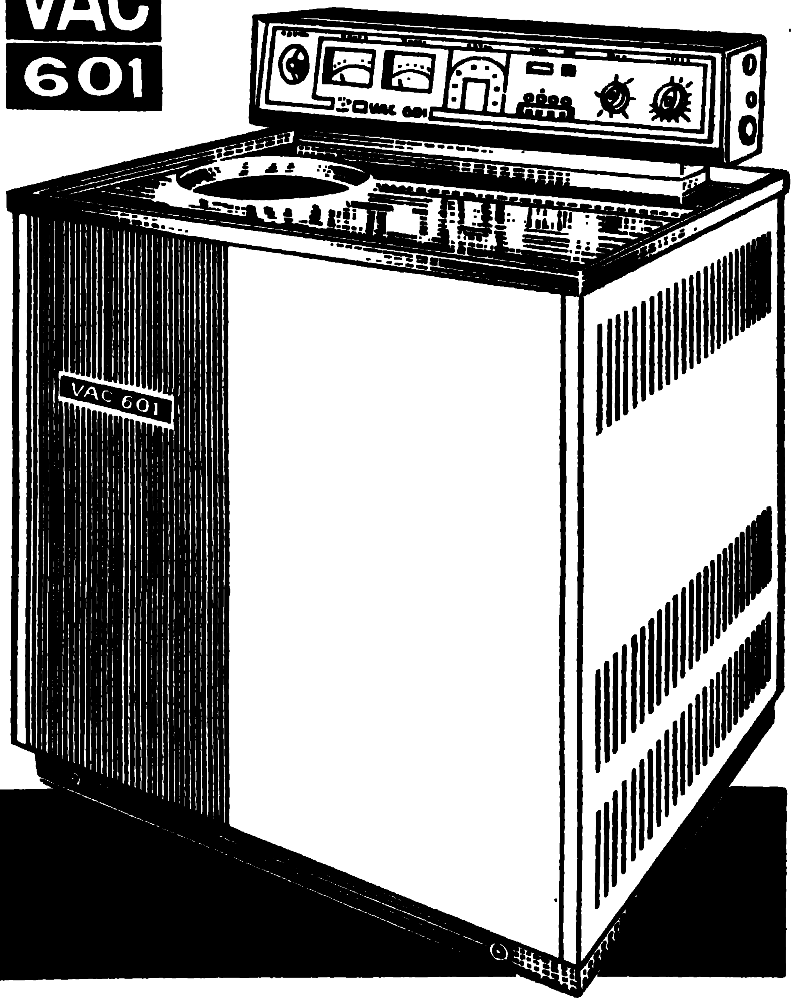

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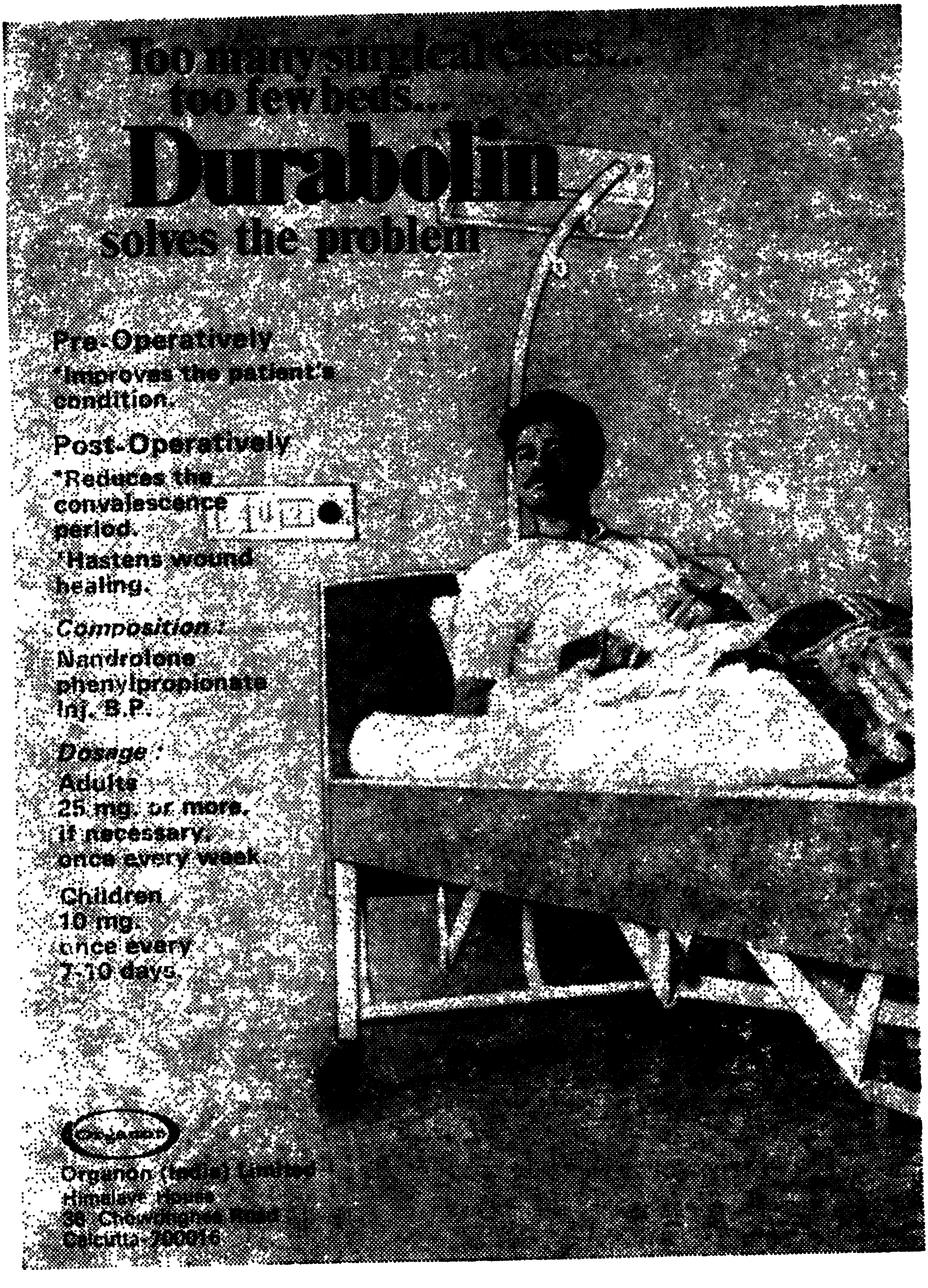

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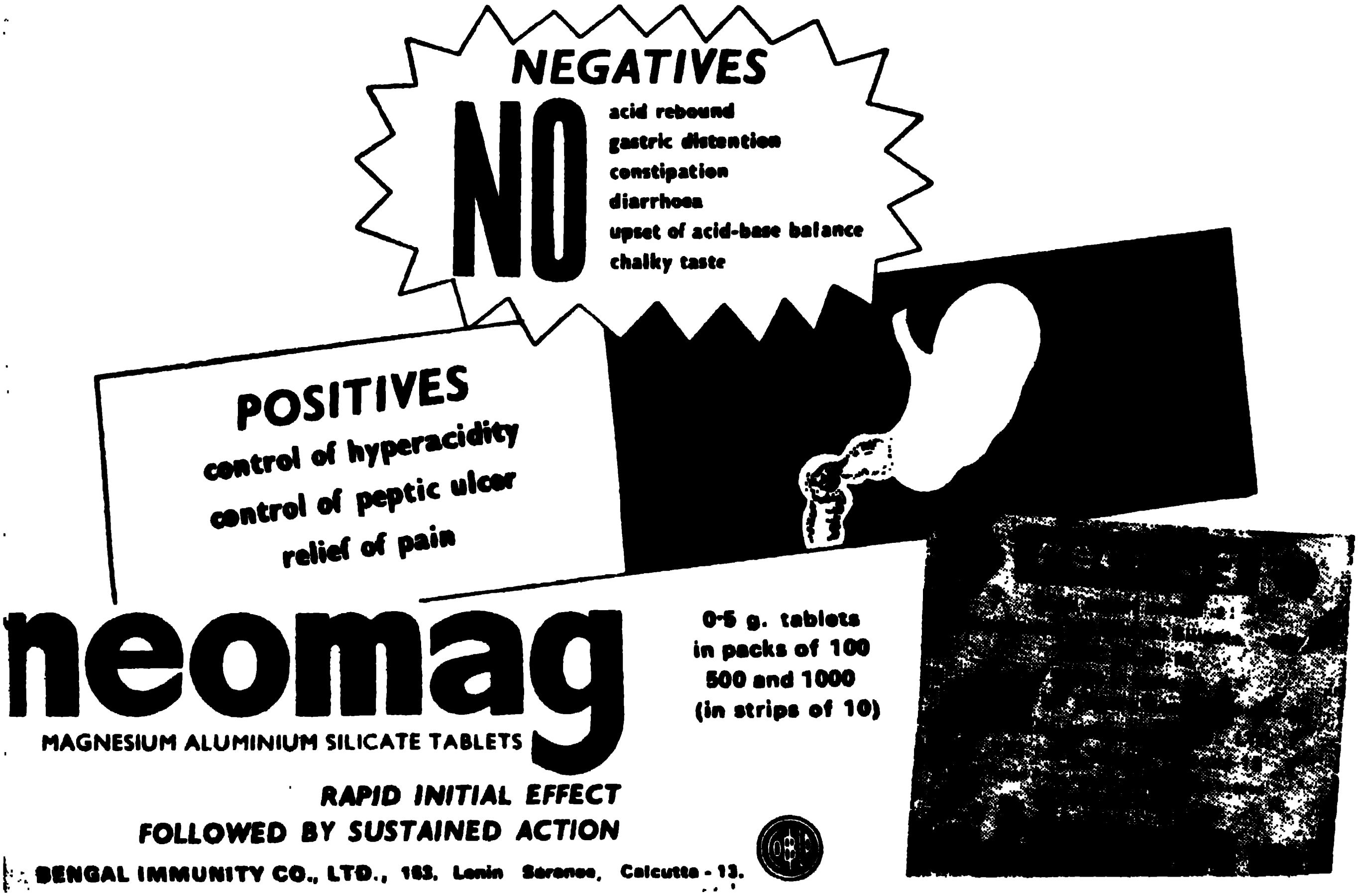

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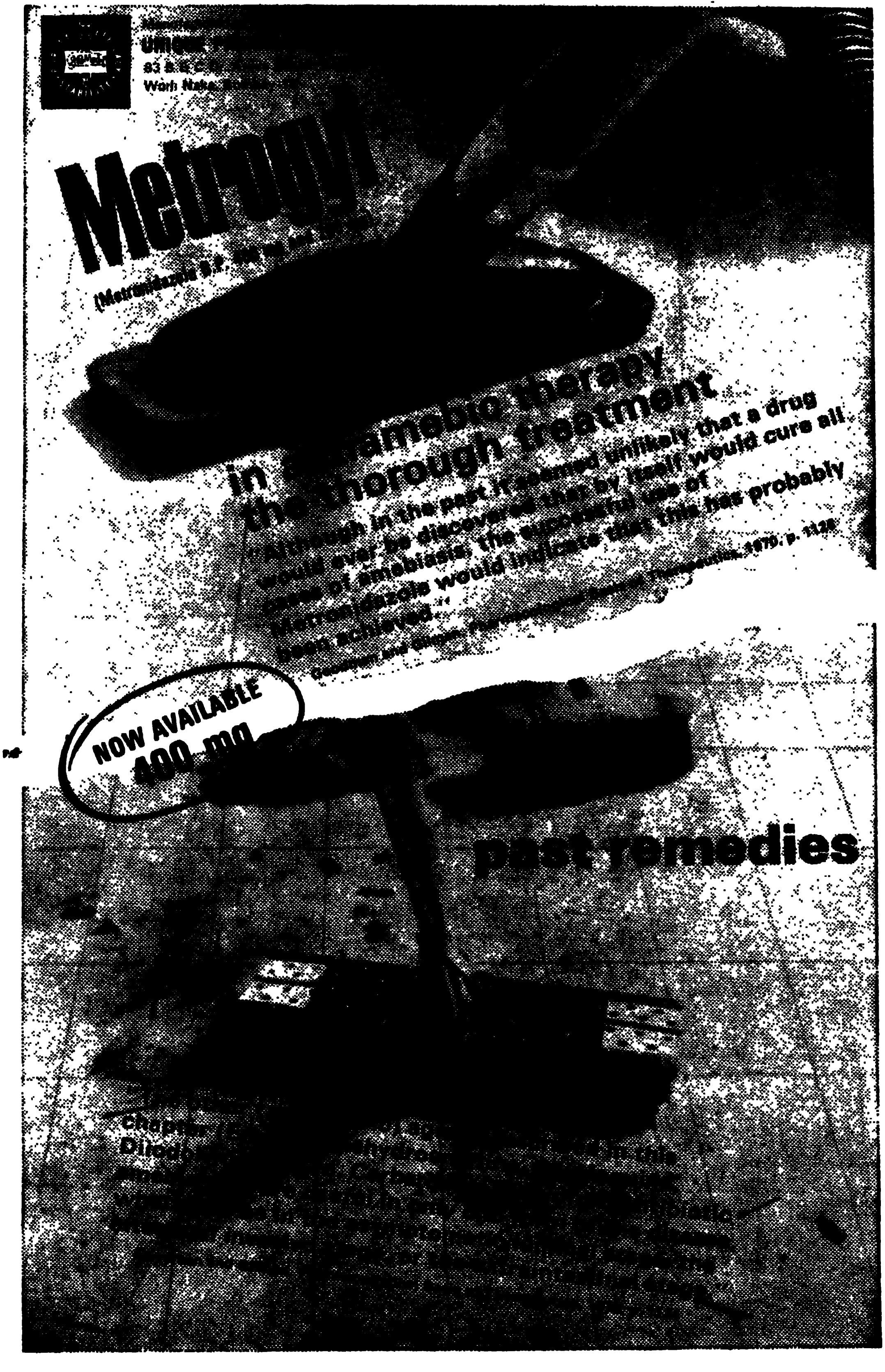

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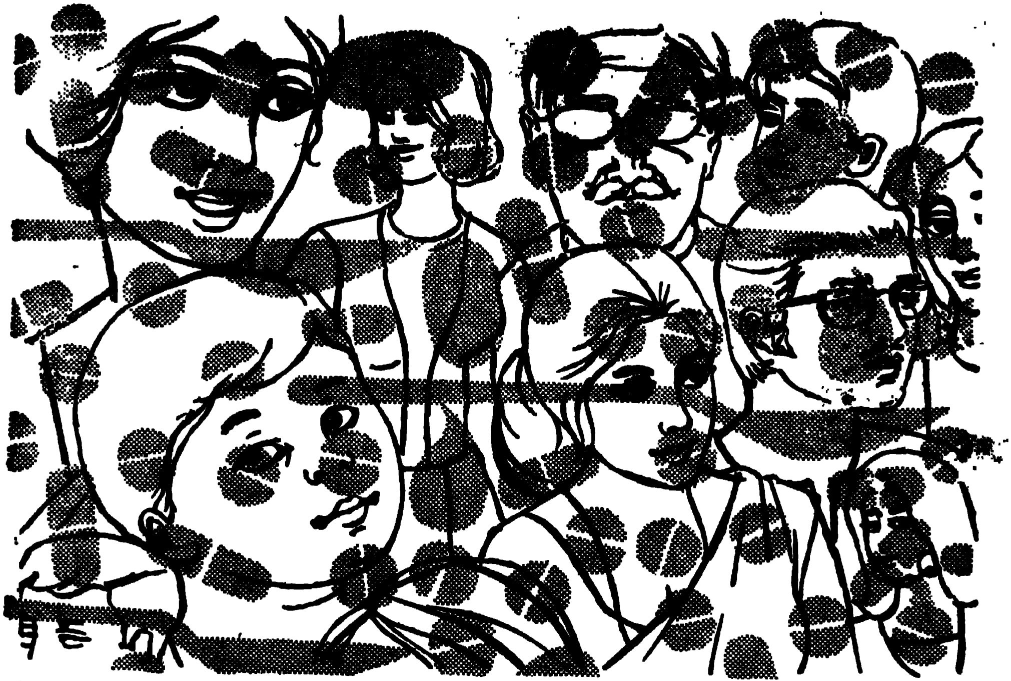

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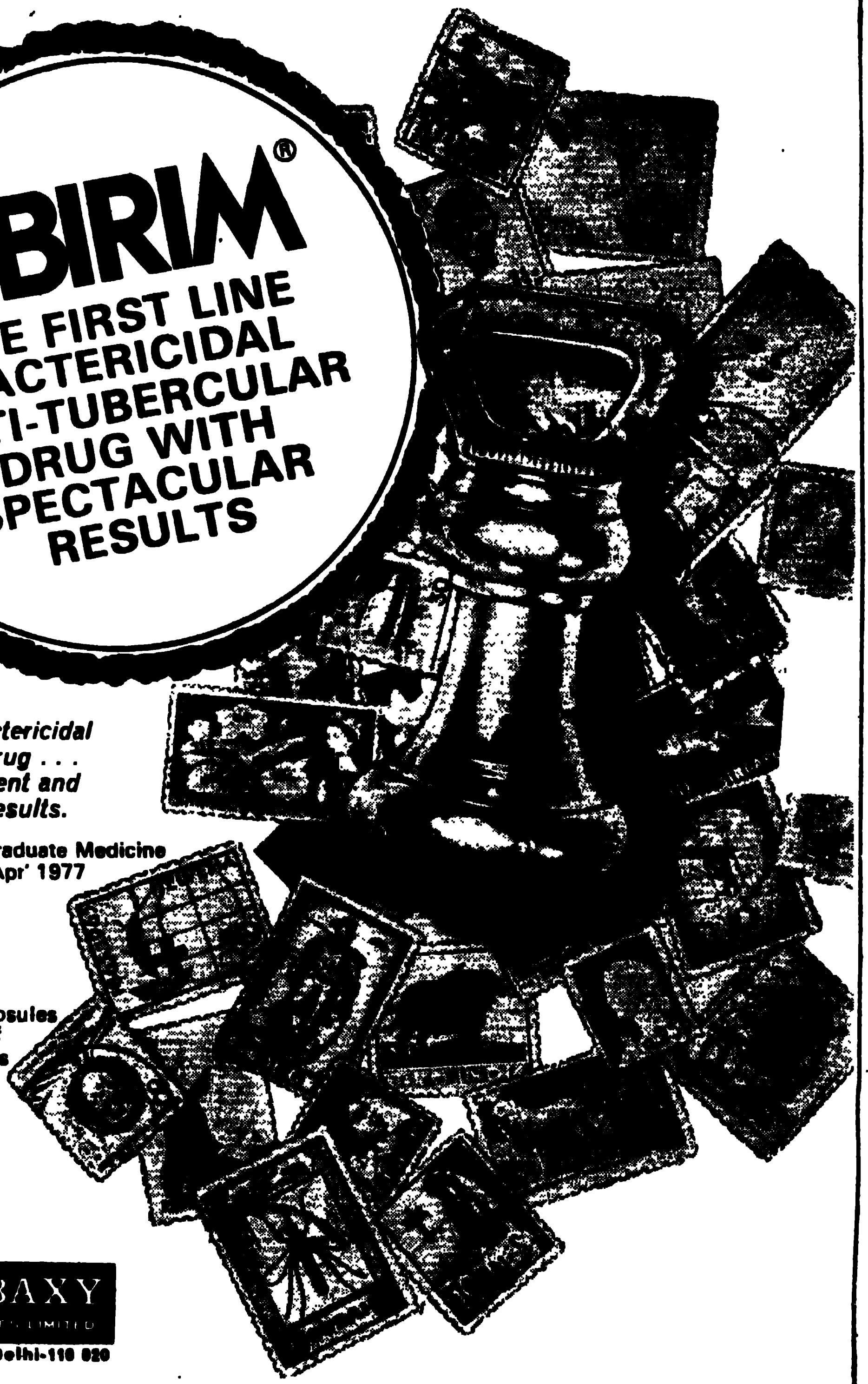

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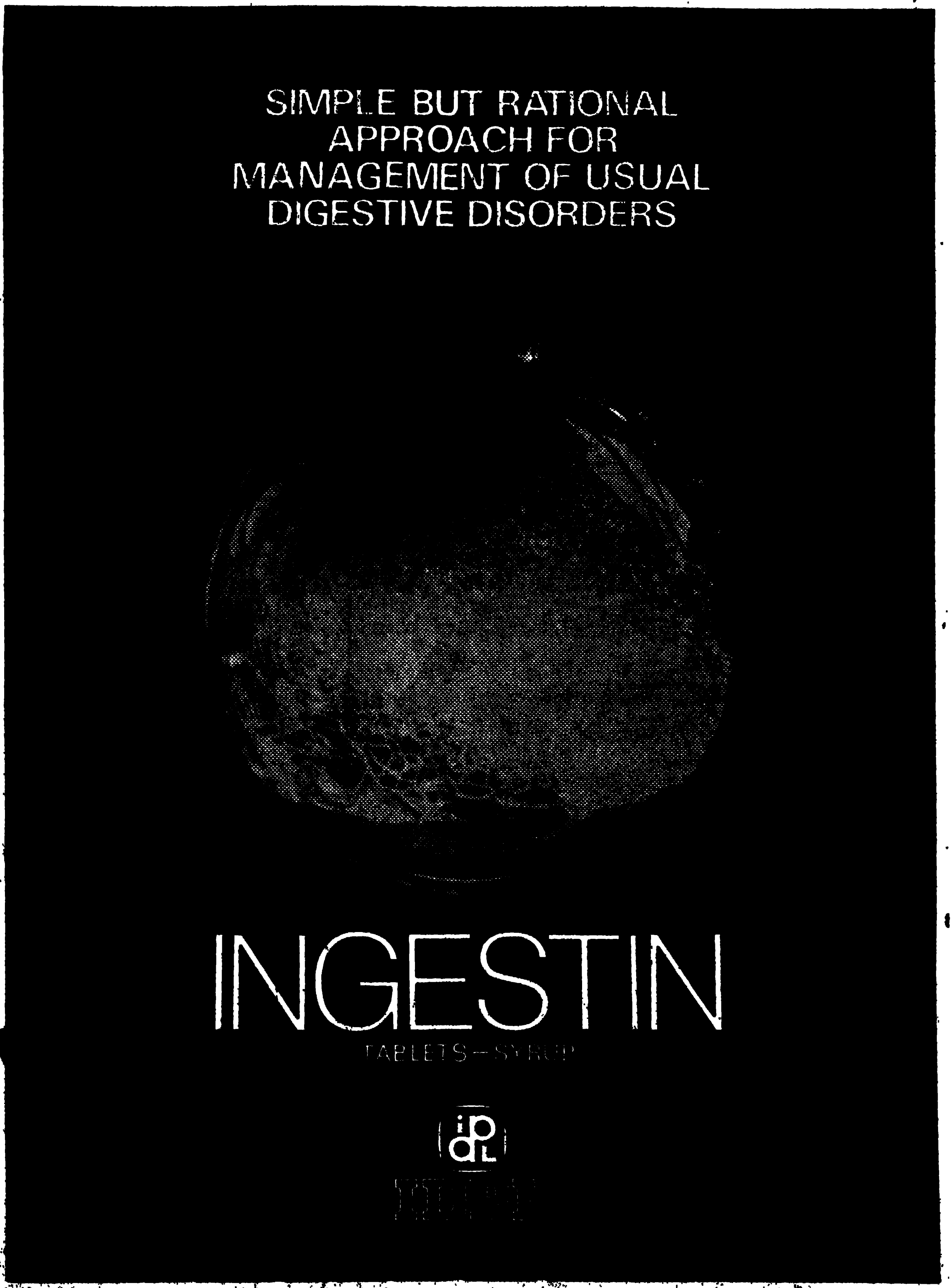

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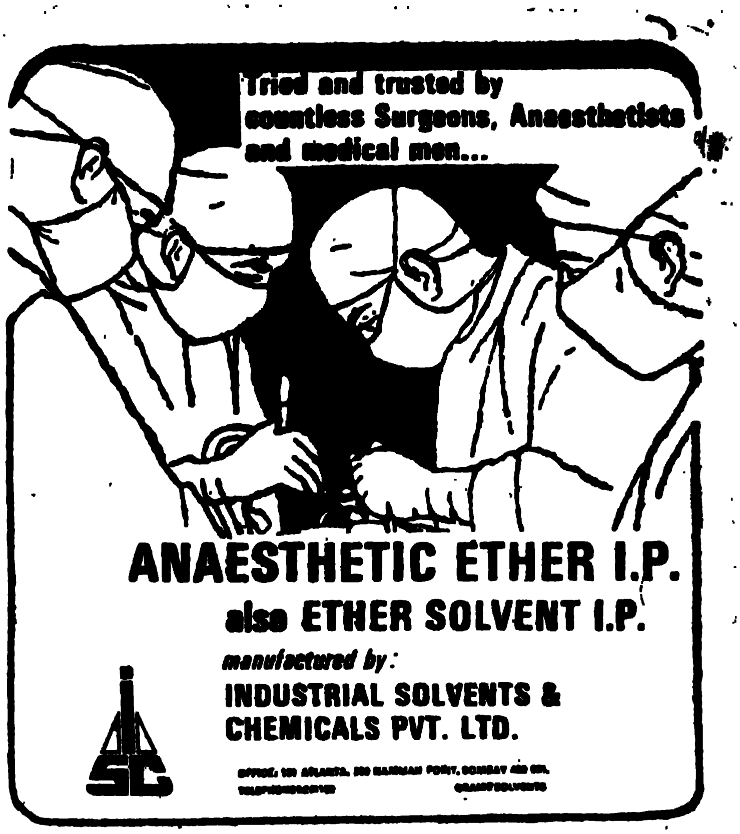
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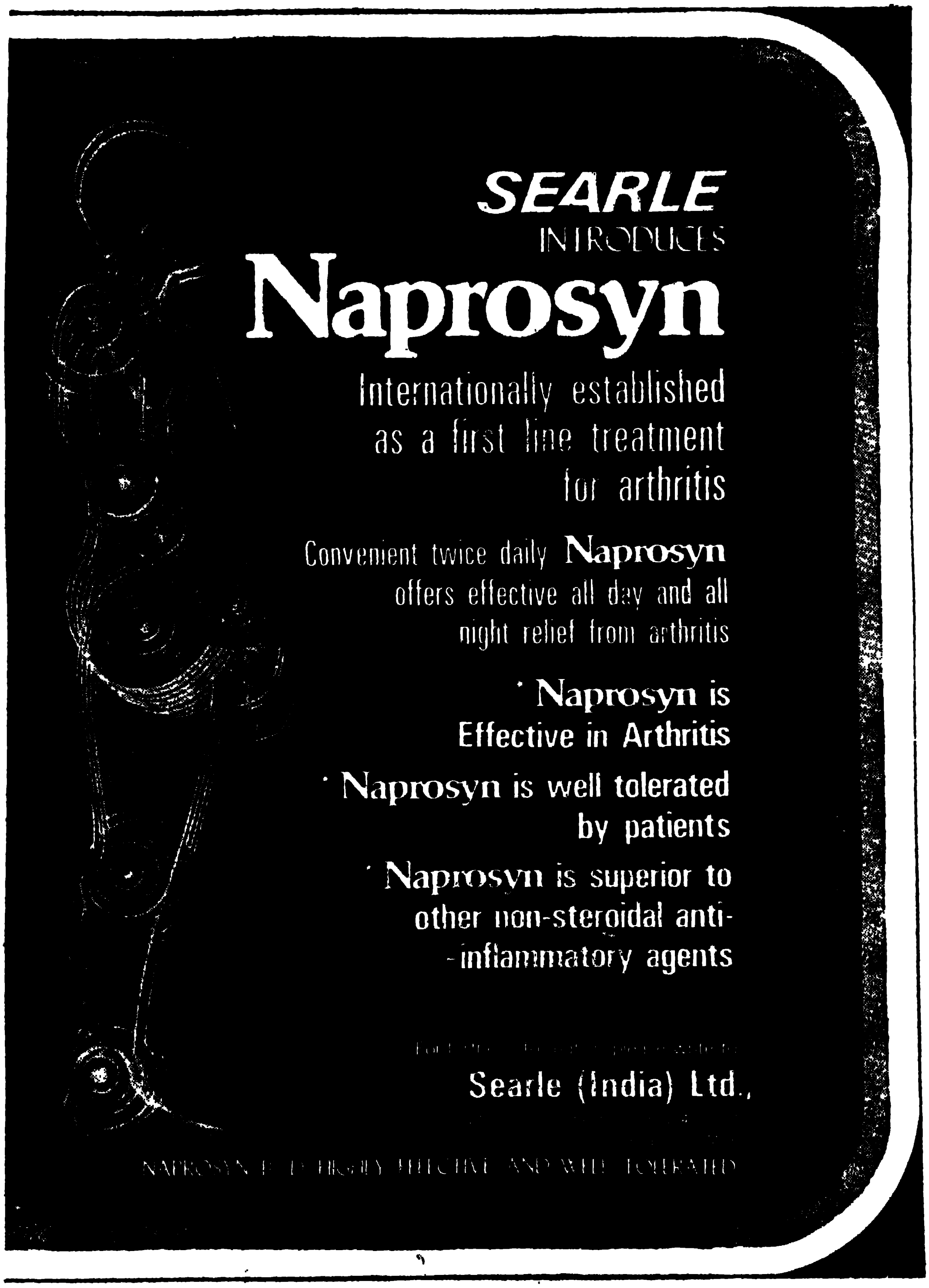

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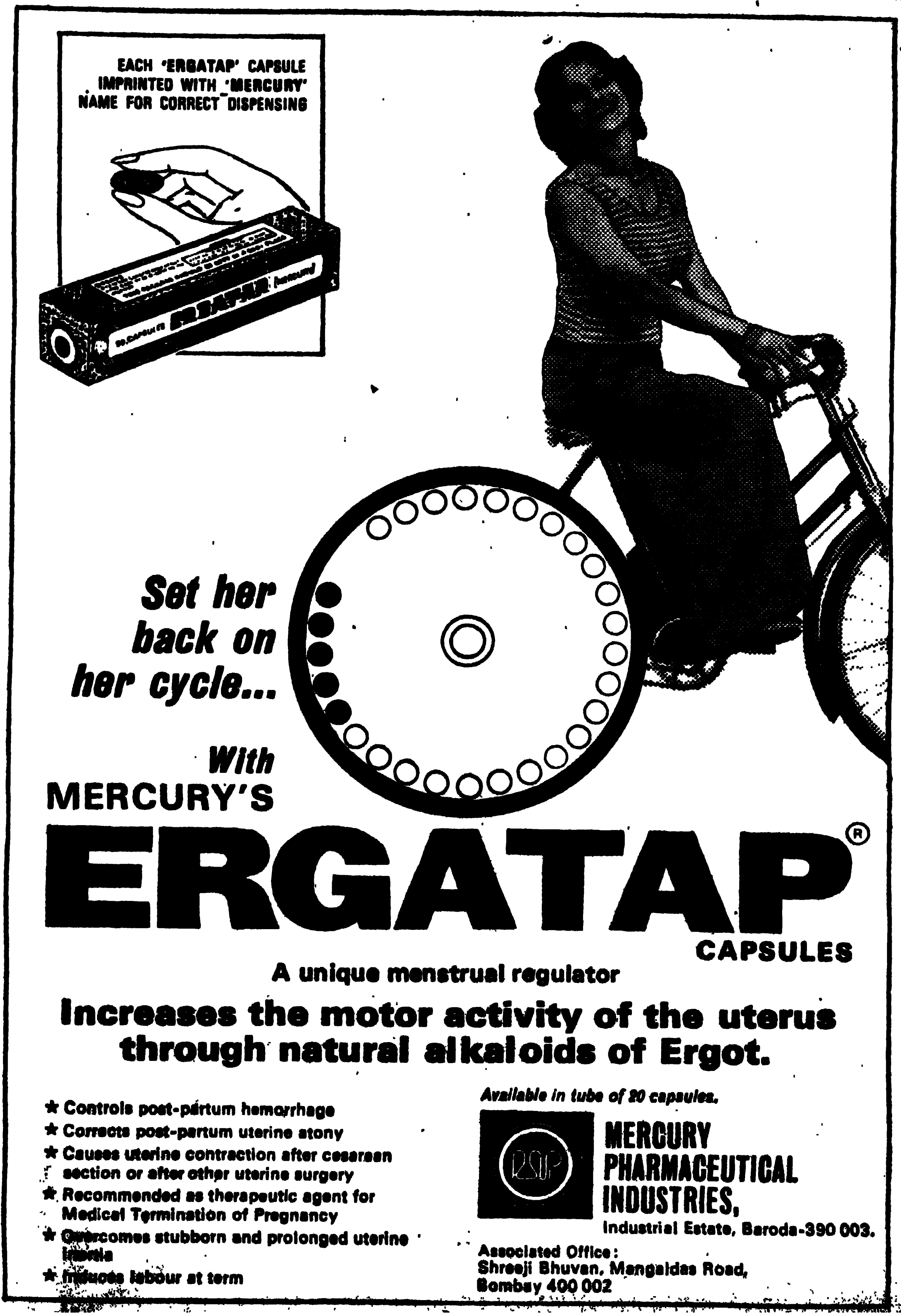

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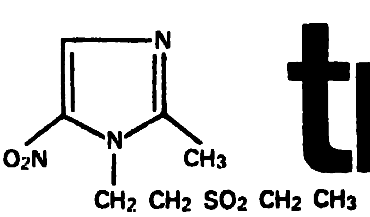

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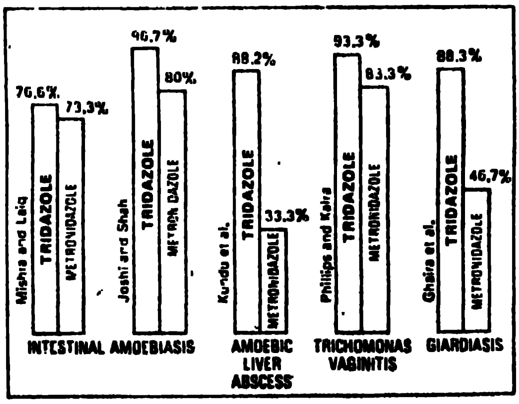

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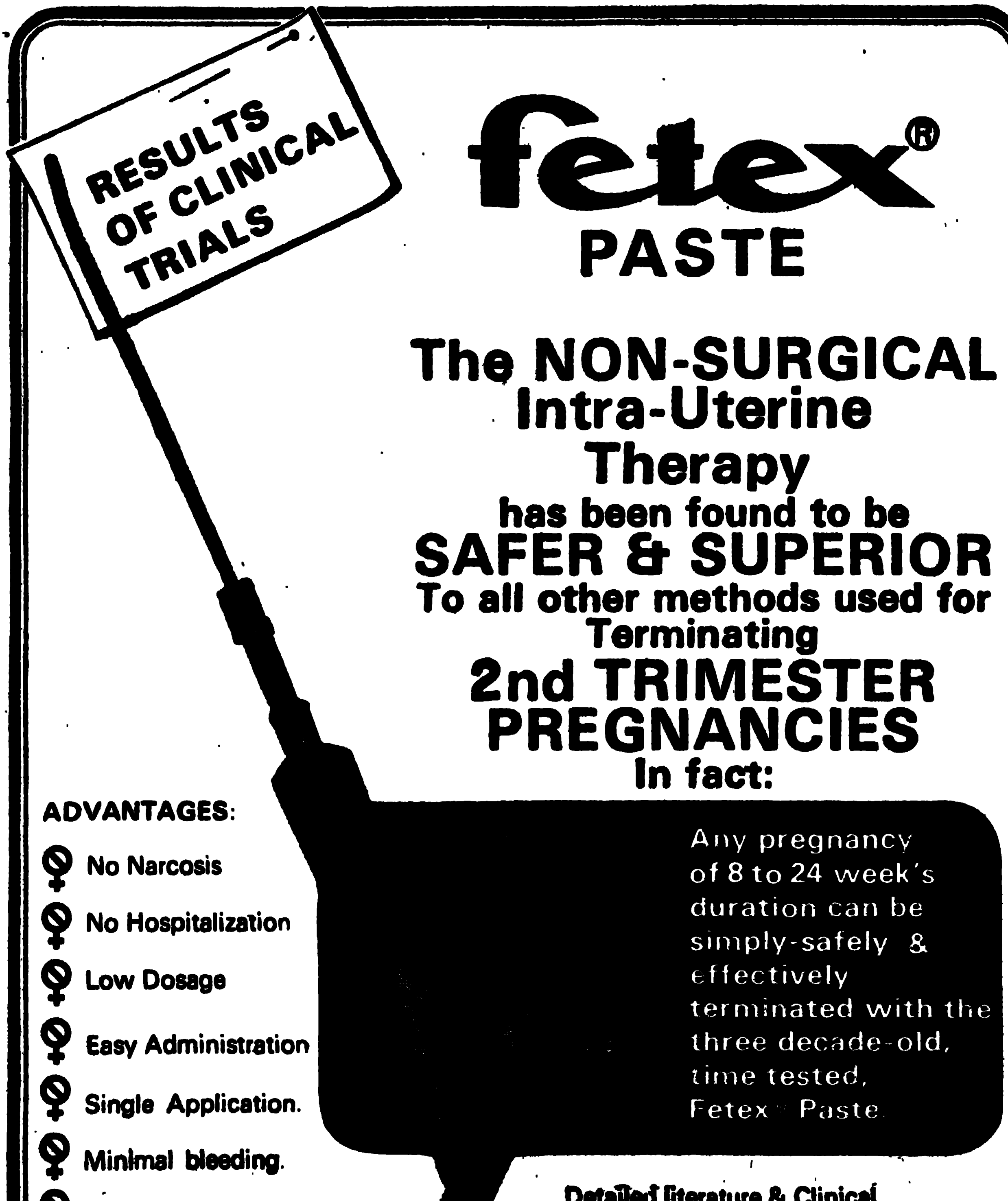

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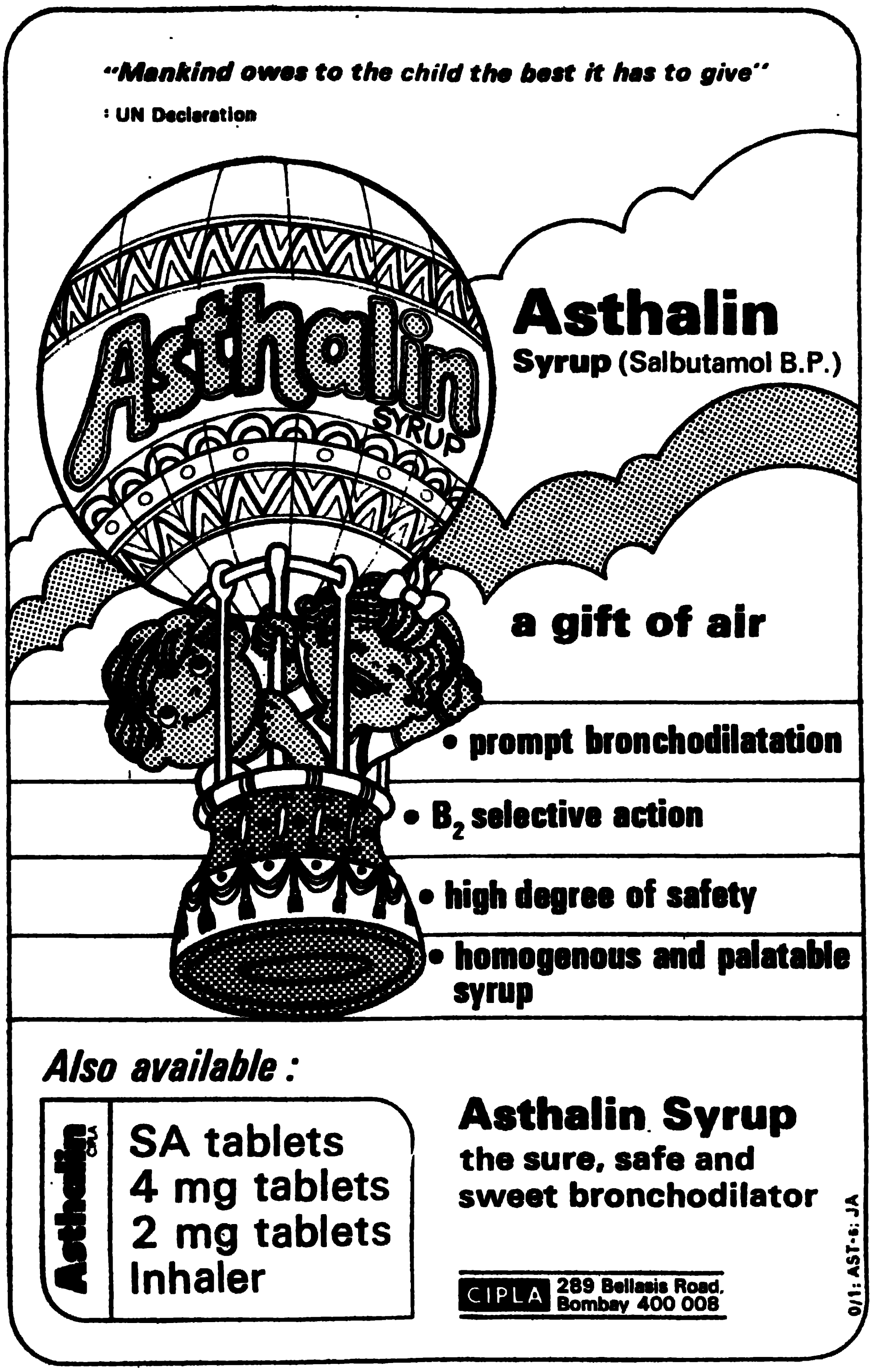

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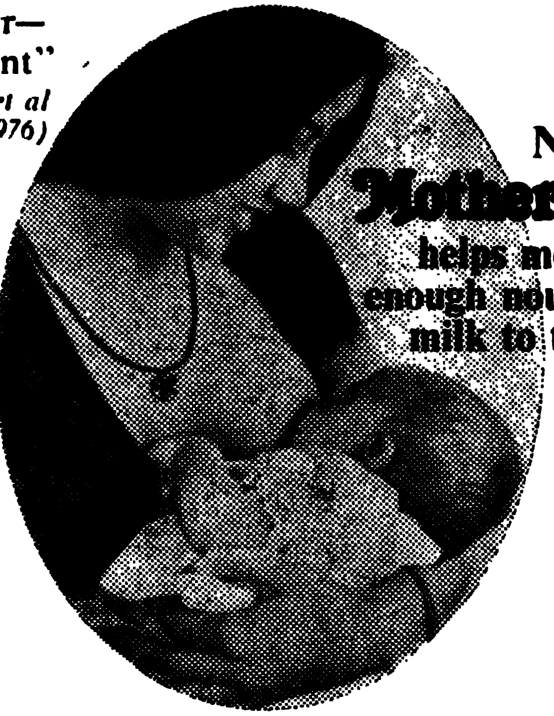

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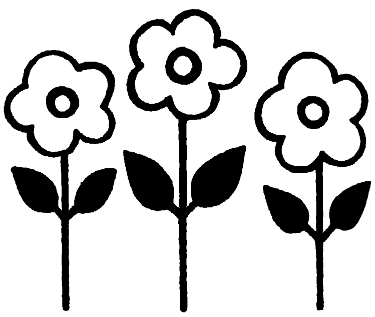

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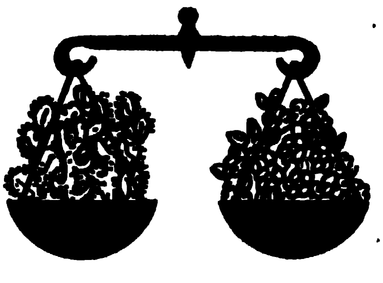

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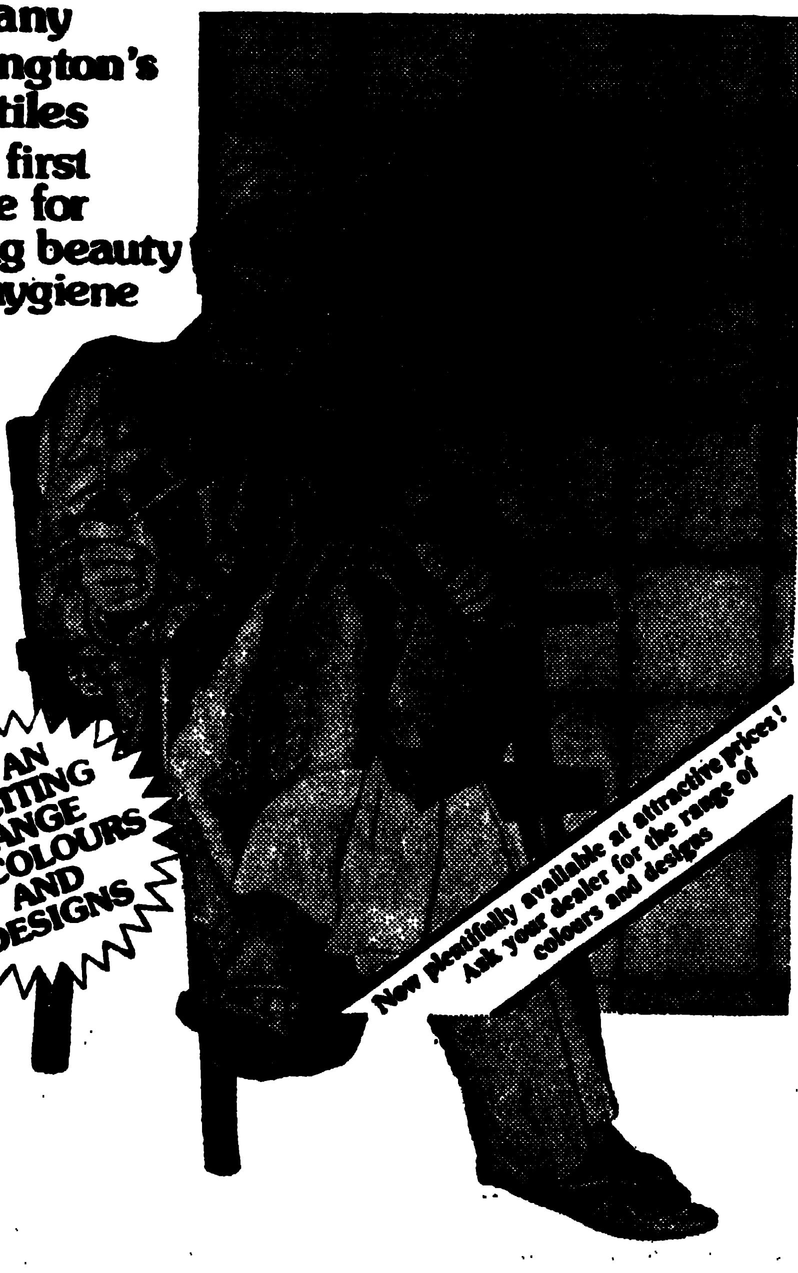
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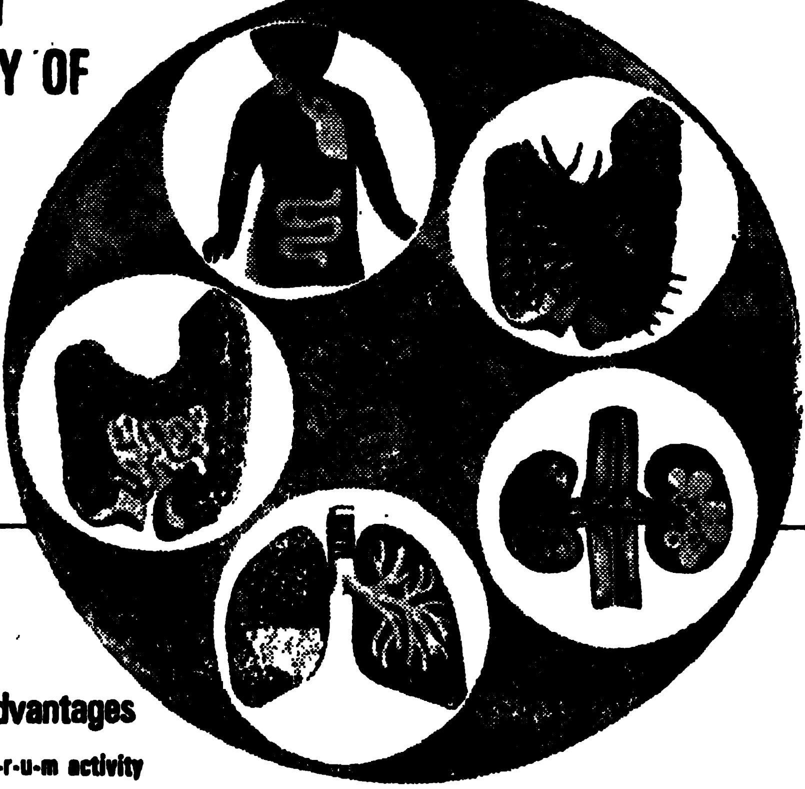

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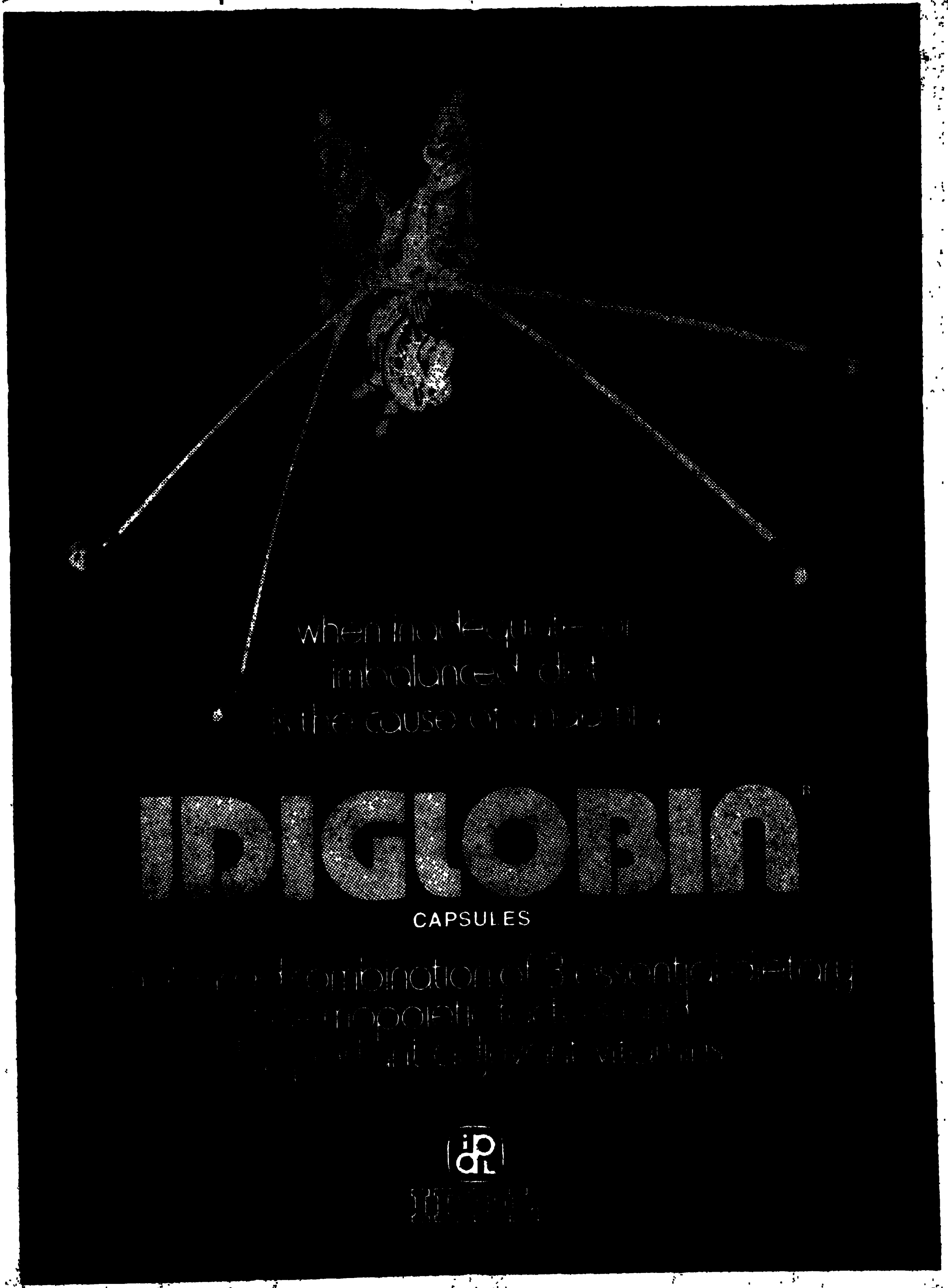
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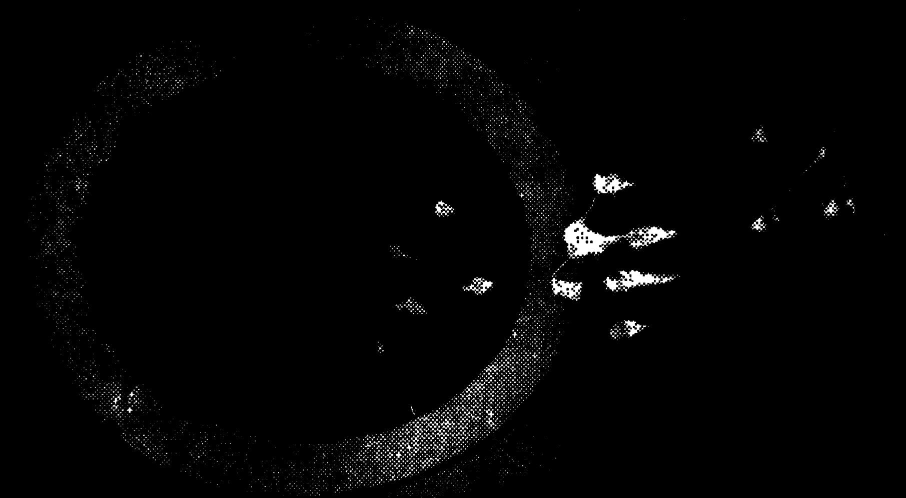

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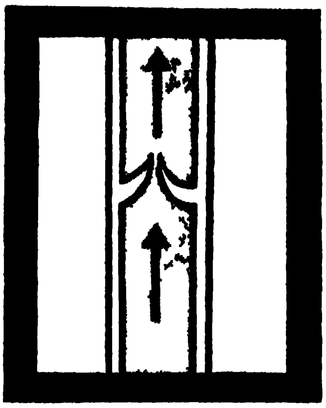

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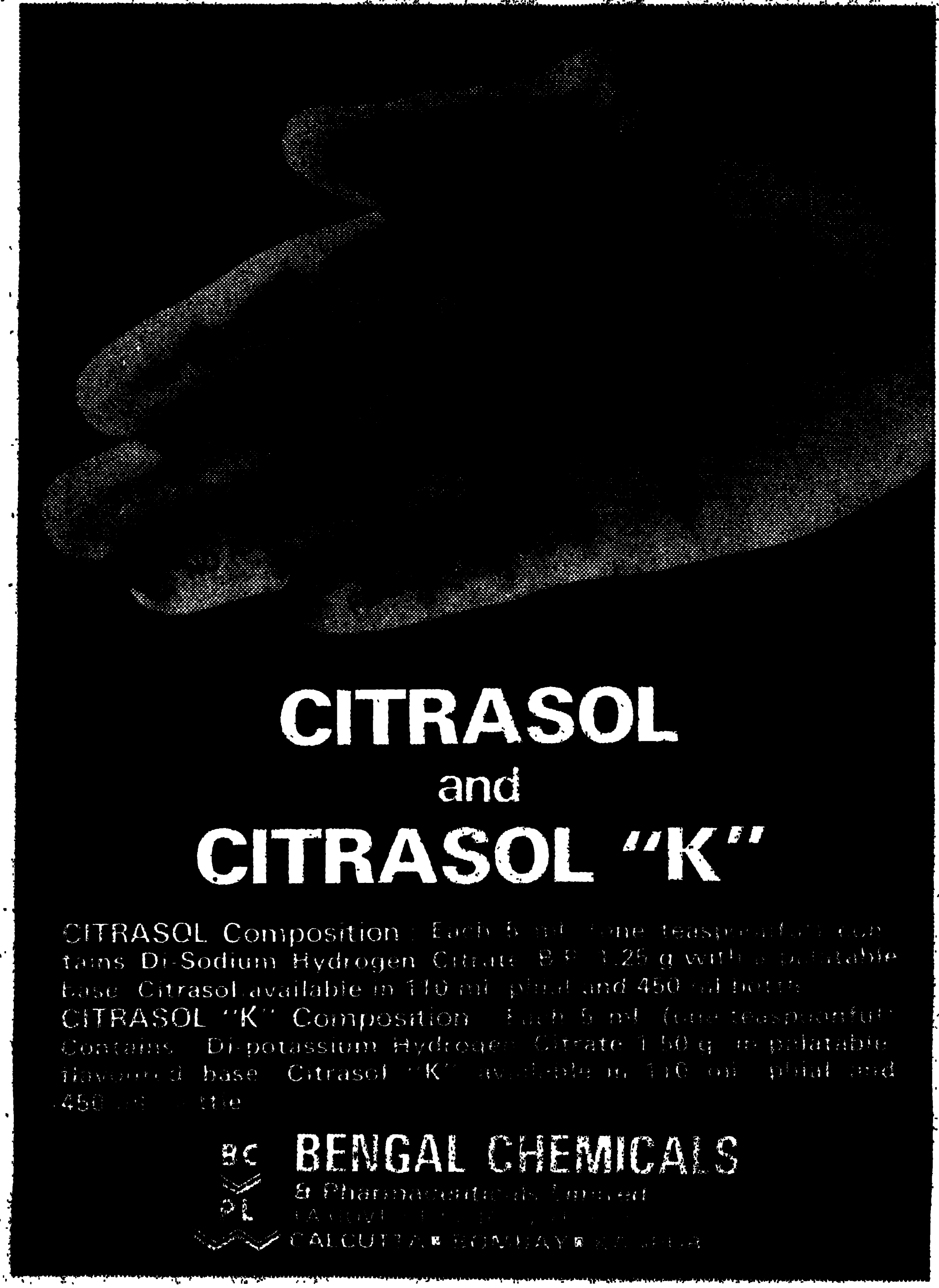

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ORIGINALS AND PAPERS

1

Biochemical Changes Suggesting Osteomalacia in Patients Receiving Anticonvulsant Drugs

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[Received for publication May 19, 1980]

Epilepsy is such a disease where patient is committed to consume large quantities of drugs for longer periods of time (Adair, 1975). Knowledge of unwanted side-effects and abnormal reactions to drugs is becoming increasingly important. The apparent association between long-term anticonvulsant therapy and defect in calcium metabolism was first reported from Germany by Kruse ((cited in Leading Article, 1972) who found that 15% of his young epileptics showed radiological evidence of osteomalacia accompanied by lowered serum calcium, lowered phosphorus and raised alkaline phosphatase levels in serum.

The present study was undertaken to find out any relationship between the anticonvulsant therapy and the biochemical or radiological changes of osteomalacia in epileptics and whether they should receive prophylactic treatment with vitamin D_2.

MATERIAL AND METHOD

The present study was based on an analysis of 50 epileptic patients from S.M.H.S. Hospital, Srinagar receiving anticonvulsant drugs. A similar number of persons receiving no drugs were studied to serve as a control group.

All epileptics were fully capable of doing their daily work, none was disabled and were receiving nutritionally adequate diet and sufficient exposure to sunlight.

All those cases were excluded from the study who had any evidence for developing osteomalacia or who had any other disease which would change the biochemical picture.

The history of those selected for study was taken in detail with particular reference to the duration and type of epilepsy, nature and duration of anticonvulsant drugs, single or combined drug therapy with dosage of each drug. Dietary history was also taken.

Each patient was put on a detailed clinical examination with particular reference to mental state, Chvostek's sign, Trousseau's sign, bony tenderness, any deformity or fracture. Evidence of muscle wasting and gait were noted. Signs of toxicity of drugs like gingival hypertrophy, lymphadenopathy, nystagmus, ataxia, etc., were also noted. The radiological examination comprised a study of pelvic x-ray for any change.

The biochemical changes of osteomalacia were noted by estimating serum calcium, phosphorus and alkaline phosphatase. Collections of blood were made in the morning between 8 A.M. and 10 A.M. while patients were fasting and blood was collected in dry sterile tubes from veins without stasis and serum separated. Serum calcium was estimated

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by the method of Roe and Kahn (Hawk *et al.*, 1954), serum phosphorus by the method of Fiske and Subbarow (1925) and serum alkaline phosphatase by the method of King and Armstrong (1954).

OBSERVATIONS

Eleven epileptic patients (22%) belonged to the age group between 7 and 15 years, 21 patients (42%) to the age group between 16 and 25 years, 12 patients (24%) in the age group between 26 and 35 years and the rest 6 patients (12%) were in the age group between 36 and 40 years.

Table 1 shows the type of drug therapy and duration of drug consumption with the number of patients. Majority of patients (40 cases) had a drug consumption of above 7 years. The dose of each drug was expressed as a score in units (Richens and Rowe, 1970). One unit being taken for every 30 mg. phenobarbitone, for every 50 mg. diphenylhydantoin. The individual score of each unit was added up to give a total representing daily dose. Three units of drug were given in 7 cases, 4 units in 18 cases, 5 units in 1 case, 6 units in 9, 7 units in 2 and 8 units in 13 cases.

TABLE 1—SHOWING THE TYPE OF DRUG THERAPY AND DURATION OF DRUG CONSUMPTION WITH THE NUMBER OF PATIENTS IN EACH TIME INTERVAL

Type of drug therapy	Name of the drugs	Duration in years 3-6	7-10	11-14	15-18	Total No. of cases
Single	Phenobarbitone	7	8	—	—	15 (30%)
	Diphenylhydantoin	1	7	1	1	10 (20%)
Combined	Phenobarbitone+ diphenylhydantoin	2	12	7	4	25 (50%)
Total		10	27	8	5	50

Serum calcium among epileptic patients taking anticonvulsant drugs was lower than that found in normal controls. The difference was statistically highly significant. Similarly there was a significant difference in alkaline phosphatase, which was higher in epileptics than controls. But there was no difference between controls and epileptics as regards serum phosphorus level (Table 2).

Ten per cent of epileptic patients had subnormal serum calcium (normal range: 8 to 11.22 mg.%) while all the epileptics showed a normal range of serum phosphorus (2.43 to 4.83 mg.%). Serum alkaline phosphatase level was above normal (normal : 24.72 King-Armstrong units) in 8% cases of epileptic patients.

TABLE 2—SHOWING COMPARATIVE VALUES OF SERUM CALCIUM, PHOSPHORUS AND ALKALINE PHOSPHATASE AMONG NORMAL CONTROL AND EPILEPTIC PATIENTS

	Calcium (mg.%)		Phosphorus (mg.%)		Alkaline phosphatase (units)	
	Control	Epileptics	Control	Epileptics	Control	Epileptics
Mean	9.574	8.952	3.63	3.65	9.62	11.82
S.D. ±	0.55	0.74	0.40	0.33	1.70	2.07
Mean difference	0.624		0.02		2.20	
P value	<0.001		>0.3		<0.001	

The maximum reduction in serum calcium and maximum elevation in alkaline phosphatase were seen in patients receiving combined drug therapy, i.e., phenobarbitone and diphenylhydantoin (Table 3).

TABLE 3—SHOWING THE EFFECT OF SINGLE AND COMBINED DRUG THERAPY ON SERUM LEVELS OF CALCIUM, PHOSPHORUS AND ALKALINE PHOSPHATASE IN EPILEPTIC PATIENTS

Nature of drug therapy	No. of cases	Calcium (mg. %) Mean S.D.	Phosphorus (mg. %) Mean S.D.	Alkaline phosphatase (units) Mean S.D.
Phenobarbitone singly	15	9.75±0.35	3.83±0.25	10.6 ±1.58
Diphenylhydantoin singly	10	9.0±0.49	3.65±0.35	11.3 ±1.42
Combined	25	8.45±0.51	3.54±0.34	12.76±2.10
Total	50	8.95±0.74	3.65±0.33	11.62±2.07

When the values of single and combined drug therapy were compared, the difference was statistically significant. It was observed that as the dose increased (Table 4), calcium level exhibited a gradual fall in its concentration. Serum phosphorus also behaved in a similar manner but the decrease in level was comparatively less. Alkaline phosphatase level in serum showed an increase with the increase in dose (Table 4).

Effect of duration of drug therapy on serum calcium, serum phosphorus and serum alkaline phosphatase is shown in Tables 5, 6, and 7 respectively. It was seen that higher the duration of drug exposure lower the serum calcium level, which was most marked in the group receiving combined therapy (Table 5). There is no positive trend in serum phosphorus levels with the duration of drug exposure (Table 6).

TABLE 4—SHOWING MEAN LEVEL CONCENTRATION OF SERUM CALCIUM, PHOSPHORUS AND ALKALINE PHOSPHATASE BY DRUG DOSE CALCULATED IN UNITS (RICHENS AND ROWE, 1970)

Daily dose (in units)	No. of cases	Serum calcium (mg. %)	Serum phosphorus (mg. %)	Alkaline phosphatase (units)
3 units	7	9.77	3.77	11.28
4 units	18	9.16	3.76	10.72
5 units	1	9.00	4.00	10.00
6 units	9	8.71	3.60	12.22
7 units	2	8.20	3.30	13.50
8 units	13	8.20	3.50	13.23

Clinical symptoms and signs of osteomalacia were observed in 10 patients (20%) of epileptic group. Generalised aches and pains were seen in 5 cases, low backache in 2 cases, proximal muscle weakness in one and bony tenderness was observed in 2 cases. Table 8 shows the comparative levels of serum calcium, phosphorus and alkaline phosphatase between epileptic patients having clinical signs and symptoms of osteomalacia and epileptic patients without clinical signs and symptoms of osteomalacia. No radiological changes were observed in any of the patients investigated in the present study.

DISCUSSION

The present study comprised 50 epileptic patients receiving phenobarbitone and diphenylhydantoin, either alone or in combination for a varying length of time ranging from 3-18 years; 80% of the patients had a drug consumption of over 7 years and 26% of cases had taken drugs for 11-18 years.

The most remarkable biochemical abnormality in this study was a reduction in serum calcium level; 10% of the epileptics had a subnormal serum calcium level (below 7.93 mg. %). The normal calcium range of the control group was 8-11.22mg. %. This frequency of 10% hypocalcaemia is more or less similar to that reported by Christiansen *et al.* (1973) who found the incidence of hypocalcaemia of the order of 12%.

The difference of serum calcium between epileptics and control group was statistically significant ($P<0.001$) and is in accordance with the findings of Richens and Rowe (*loc. cit.*).

The other biochemical abnormality detected was a rise in serum alkaline phosphatase in 8% of cases. However, hypocalcaemia may be the only biochemical abnormality found in osteomalacia (Stanbury, 1972).

It is also observed from the present study that there was a direct correlation between serum levels of calcium and those of alkaline phosphatase. Hypocalcaemia was seen to be associated with raised serum alkaline phosphatase. This is quite similar to that reported by Richens and Rowe (*loc. cit.*) and Sotaniemi *et al.* (1972).

Hypocalcaemia was found more frequently in patients receiving combined drug therapy (Table 3). This finding is also in agreement with the findings of Richens and Rowe (*loc cit.*) and Sotaniemi *et al.* (*loc. cit.*). This effect could be accounted for by the fact that combined therapy produced a higher total daily dose. It has been observed that higher doses produce more severe biochemical changes. It was seen that as the dose increased from 3 units to a maximum of 8 units serum calcium decreased from a level of 9.77 mg. % to 8.2 mg. % and alkaline phosphatase rose from a level of 11.28 King-Armstrong units to 13.23 King-Armstrong units (Table 4). However, Hunter *et al.* (1971) and Crosely *et al.* (1975) were unable to find any correlation between lowered serum calcium and total daily dose of anticonvulsant drugs.

It was also observed from the present study that diphenylhydantoin was more potent than phenobarbitone for the production of biochemical abnormalities; patients receiving diphenylhydantoin had a lower mean level of calcium than those receiving phenobarbitone (Table 3). These findings are same as reported by Richens and Rowe (*loc. cit.*).

It was observed that patients taking a combined drug therapy showed a correlation between the biochemical abnormalities and duration of drug intake. Serum calcium showed a fall from 9.15 mg. % to 7.77 mg. % in those receiving combined drug regime as the duration of exposure to drug increased from 3 to 18 years (Table 5). A similar correlation between the duration of therapy with the intensity of changes had been reported by Tolman *et al.* (1975).

The present study demonstrated that 10% had clinical signs and symptoms in the form of generalised aches and pains in 5 cases, low backache in 2 cases,

TABLE 5—SHOWING THE EFFECT OF DURATION OF DRUG THERAPY ON SERUM CALCIUM LEVEL (mg. %)

Drug(s)	Duration							
	3-6 years		7-10 years		11-14 years		15-18 years	
	No. of cases	Mean ±S.D.	No. of cases	Mean ±S.D.	No. of cases	Mean ±S.D.	No. of cases	Mean ±S.D.
Phenobarbitone singly	7	9.75 ±0.02	8	9.75 ±0.21	—	—	—	—
Diphenylhydantoin singly	1	10.0	7	8.94 ±0.78	1	8.7	1	8.7
Combined	2	9.15 ±0.15	12	8.54 ±0.40	7	8.49 ±0.37	4	7.77 ±0.17

TABLE 6—SHOWING THE EFFECT OF DURATION OF DRUG THERAPY ON SERUM PHOSPHORUS LEVEL (mg. %)

Drug(s)	Duration							
	3-6 years		7-10 years		11-14 years		15-18 years	
	No. of cases	Mean ±S.D.	No. of cases	Mean ±S.D.	No. of cases	Mean ±S.D.	No. of cases	Mean ±S.D.
Phenobarbitone singly	7	3.77 ±0.55	8	3.009 ±0.49	—	—	—	—
Diphenylhydantoin singly	1	3.99	7	3.69 ±0.51	1	3.4	1	3.4
Combined	2	4.0	12	3.45 ±0.40	7	3.47 ±0.87	4	3.725 ±0.15

TABLE 7—SHOWING THE EFFECT OF DURATION OF DRUG INTAKE ON SERUM ALKALINE PHOSPHATASE LEVEL (KING-ARMSTRONG UNITS)

Drug(s)	Duration							
	3-6 years		7-10 years		11-14 years		15-18 years	
	No. of cases	Mean ±S.D.	No. of cases	Mean ±S.D.	No. of cases	Mean ±S.D.	No. of cases	Mean
Phenobarbitone singly	7	10.06 ±1.40	8	10.30 ±1.62	—	—	—	—
Diphenylhydantoin singly	1	12	7	11.0 ±1.83	1	13	1	13
Combined	2	8.50 ±1.32	12	13.0 ±1.08	7	12.71 ±2.21	4	14.25

TABLE 8—SHOWING COMPARATIVE LEVELS OF SERUM CALCIUM, PHOSPHORUS AND ALKALINE PHOSPHATASE BETWEEN EPILEPTIC PATIENTS HAVING NO CLINICAL SIGNS AND SYMPTOMS AND EPILEPTIC PATIENTS WITH CLINICAL SIGNS AND SYMPTOMS OF OSTEOMALACIA

	Calcium (mg. %)		Phosphorus (mg. %)		Alkaline phosphatase (units)	
	Clinically negative	Clinically positive	Clinically negative	Clinically positive	Clinically negative	Clinically positive
Mean	9.09	8.75	3.67	3.60	11.77	11.90
SD±	0.70	0.69	0.46	0.31	1.85	2.34
Mean difference	0.34		0.07		0.13	
P value	>0.05 Insignificant		>0.5 Insignificant		>0.8 Insignificant	

proximal muscle weakness in 1 case and bony tenderness in 2 cases. Although serum calcium and phosphorus levels were lower in these clinically positive cases, this difference was statistically insignificant (Table 8).

No radiological changes were detected in patients taking drugs in the present study. It is known that lowered values of serum phosphorus generally correlates with osteomalacia better than with serum calcium values (Frame, 1971). Andren (1951) proved that lot of calcium has to be lost from the bones before the changes become evident on x-ray examination. He suggested that 30-50% reduction in bone mass has to occur before routine radiological techniques can detect significant changes. Bone mineral content is now measured by photon absorptiometry which is a sensitive method of detecting osteopenia even if only 4% reduction in bone mass has occurred (Anast, 1975).

Christiansen *et al.* (1972) measured bone mineral content in their epileptic patients who had no clinical or biochemical findings of osteomalacia. They found that epileptic patients had a low bone mineral content which was further reduced with continuous use of anticonvulsant drugs. This latent osteomalacia in absence of clinical or biochemical abonormalities is descernable only by a low bone mineral content measured by photon absorptiometry, the latest sensitive method of detecting reduction in bone mass when routine radiological techniques fail to detect changes in the skeleton.

The principal postulated mechanism for the biochemical abnormalities by anticonvulsant drugs is the accelerated breakdown of vitamin D_3 by drug reduced hepatic enzyme induction (Dent *et al.*, 1970). The hepatic enzyme induction causes increased breakdown of vitamin D_3 to its inactive metabolites other than 25 hydroxycholeclciferol and 1, 25 dihydroxycholecalciferol resulting in a tissue deficiency of active metabolites of the vitamin (Frame, *loc.cit.*).

It has recently been suggested that it is possible to assess liver microsomal activity quantitatively by measuring the urinary excretion of D-glucaric acid (Hunter *et al.*, *loc. cit.*). It was found by these workers that the excretion of D-glucaric acid in their epileptic patients increased significantly and the increased excretion had a direct correlation with the total daily dose of the drug.

It has been shown that anticonvulsant drugs cause increased hydroxylation of a variety of steroid hormones and an increased excretion of their metabolites (Conney, 1967; Kuntzman, 1969). The effect is dose related. The structural similarity of vitamin D_3 to the steroid hormones allows the speculation to a similar increase in the catabolism of vitamin D_3, reducing the levels of its active metabolites with consequent hypocalcaemia and osteoporosis.

SUMMARY

A total number of 50 epileptic patients receiving anticonvulsant drugs were studied for biochemical and radiological evidences of osteomalacia. It was observed that anticonvulsant drugs caused a reduction in serum calcium and a rise in serum alkaline phosphatase levels. The biochemical changes were observed to correlate with the dose and duration of drug taken. Higher doses caused more severe biochemical changes. Patients receiving combined medication (phenobarbitone and diphenylhydantoin) were observed to have a greater frequency of changes than single drug therapy. It was also observed that despite a similarity in total daily dose, diphenylhydantoin was more potent than phenobarbitone in producing biochemical changes.

No radiological evidence of osteomalacia was detected in any of the patients studied.

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2

Hepatic Involvement in Ascitic Type of Tuberculous Peritonitis

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[Received for publication September 15, 1980]

Hepatic involvement in tuberculosis is being frequently noted (Sherlock, 1975), mostly in pulmonary tuberculosis as well as in tuberculosis of the gastrointestinal tract. The clinical and biochemical data of hepatic enlargement and jaundice, tuberculous granulomas and other non-specific changes in hepatic histology in abdominal tuberculosis published so far are scanty and controversial (Arora *et al.*, 1956; Mehrotra and Agarwal, 1968; Gambhir *et al.*, 1972).

The present study has been undertaken with a view to evaluate the hepatic lesions and liver functions in cases of ascitic type of tuberculous peritonitis.

MATERIAL AND METHOD

Twenty-five cases of peritonitis with mild to moderate degree of ascites were selected for the present study. History was recorded in details and clinical examination was done thoroughly. Routine investigations of blood (haemoglobin, total and differential leucocytic count, ESR), Mantoux test (1 test unit) and a skiagram of the chest were done in all cases. Liver function tests performed included estimation of total and differential serum proteins, serum bilirubin and serum transaminases (aspartate and alanine). The ascitic fluid was examined physically, biochemically and cytologically. The centrifuged deposit was also stained by Gram's stain and acid-fast stain. Liver and peritoneal biopsies were performed by Vim-Silverman's needle.

The diagnosis of tuberculous peritonitis was established on the basis of (i) history of low grade fever, personal and family history of pulmonary tuberculosis, past history of pleurisy with effusion, features of acute and subacute intestinal obstruction, diffuse pain and tenderness in abdomen, mass in abdomen; (ii) raised ESR; (iii) positive Mantoux test; (iv) radiological evidence; (v) exudative type of ascitic fluid; (vi) peritoneal biopsy evidence and (vii) good response to antituberculosis drugs.

OBSERVATIONS

Out of the 25 cases, females were 15 and males were 10. Jaundice could not be detected in any case. The liver was enlarged in 8 cases (32%) ranging from 1.0 cm. to 4.0 cm. below the right costal arch, smooth and non-tender. Mantoux test was positive in all cases. Ascitic fluid was exudative in nature in all.

Liver function tests—Serum total protein ranged from 3.8 g.% to 7.1 g.% with mean value of 6.2 g.%. Hypoproteinaemia was present in 9 cases (36%). Serum albumin level ranged from 2 g.% to 3.8 g.%, the mean value was 3.3 g.%. Hypoalbuminaemia was present in 7 cases (28%). Serum globulin level was between 1.4 g.% to 2.9 g.%, the mean value being 2.1 g.%. The albumin globulin ratio was reversed in 3 cases. Serum bilirubin values were all within the normal range. Serum alkaline phosphatase values were normal in all cases. Serum transaminases (aspartate and alanine) levels were also within the normal range.

Histopathological findings—(a) Histopathological examination of stained liver tissue demonstrated granuloma in one case (Fig. 1, H. & E., ×360). The granuloma consisted of central caseation surrounded by giant cells, epitheloid cells and lymphocytes. Acid-fast stain did not reveal any acid-fast bacillus. However, the findings were consistent with the diagnosis of tuberculous granuloma. The same case also demonstrated focal fatty change with mild round cell infiltration in the periportal space. Thirteen cases (52%) demonstarated non-specific changes. The non-specific changes observed, were in the form of cellular infiltration, fatty change, focal fibrosis, either alone or in combination. Dense cellular infiltration with round cells, occasional histiocytes and polymorphs was present in 3 cases. Extensive fatty change was present in one case. Mild generalised fatty change in 3 cases and focal fatty change associated with occasional round cell infiltration was present in 2 cases. There was no evidence of cirrhosis in any case. The liver tissue was normal in 11 cases (44%). Reticulin stain preparation demonstrated normal liver architecture in all cases.

(b) Histopathological findings in the peritoneal bio-

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FIG. 1—SHOWING A TUBERCULOUS GRANULOMA WITH CENTRAL CASEATION SURROUNDED BY GIANT CELLS, EPITHELOID CELLS AND LYMPHOCYTES IN MICROPHOTOGRAPH OF LIVER BIOPSY

psy revealed non-specific changes in 14 cases (56%) and in rest of the cases the findings were within the normal limits. These non-specific changes were in the form of dense focal cellular infiltrations, scattered ellular infiltrations and fibrosis. These types of non-specific changes are said to be the precursors of tuberculous granuloma and are compatible with the diagnosis of tuberculous peritonitis (Mehrotra *et al.*, 1964).

DISCUSSION

From the study it is evident that there was no overt evidence of hepatic involvement in the present cases of tuberculous peritonitis. Jaundice clinically and biochemically could not be detected in any. Rarity of jaundice in tuberculous hepatitis has been commented by Arora *et al.* (*loc. cit.*) and Mukherjee *et al.* (1968). Arora *et al.* (*loc. cit.*) reported higher incidence of hepatomegaly as high as 83% in abdominal tuberculosis, whereas Gambhir *et al.* (*loc. cit.*) reported in 13.37% cases and Mehrotra and Agarwal (*loc. cit.*) reported in 14% cases. The incidence of hepatomegaly in the present series being 32% (8cases) of which 5 cases were females. Higher incidence of hepatomegaly in females also has been reported by Arora *et al.* (*loc. cit.*). Out of these 8 cases 5 cases had pulmonary lesions, thickened pleura in 2 and evidence of pulmonary fibrosis with calcification in 2 cases and pulmonary tuberculosis in one case. Four cases of hepatomegaly has been associated with systemic toxaemia.

Arora *et al.* (*loc. cit.*), reported abnormal liver function tests in 66% cases in abdominal tuberculosis. Gambhir *et al.* (*loc. cit.*) reported low level of serum protein in abdominal tuberculosis, whereas Hurst *et al.* (cited by Arora *et al.*, *loc. cit.*) reported normal serum protein and Eichelberger and Macclusky (cited by Arora *et al.*, *loc. cit.*) reported raised value of serum protein in these cases. In the present study hypoproteinaemia was present in 9 cases (36%) and hypoalbuminaemia was present in 7 cases (28%). Out of these 9 cases of hypoproteinaemia 5 cases were associated with hepatomegaly and out of the 7 cases of hypoalbuminaemia 5 cases had hepatomegaly.

Mehrotra and Agarwal (*loc. cit.*) reported tuberculous granuloma in one out of 50 cases (2%). Gambhir *et al.* (*loc. cit.*) reported tuberculous granuloma in 3 out of 30 cases (10%). Caseous tuberculous granuloma was detected in one case (4%) only in the present study. The specific change of tuberculosis in histology is the tubercle, since demonstration of acid-fast bacilli from the stained tissue section is rarely possible. The percentage of positivity in the needle biopsy specimen is much less when compared to the autopsy specimen (Sen and Choudhury, 1966). The reason being that the tissue obtained in needle biopsy is less and the procedure is a blind one. Therefore a positive liver biopsy while establishes the diagnosis, a negative result does not exclude tuberculosis. Non-specific changes in the form of cellular infiltration, fatty change, fibrosis either alone or in combination were present in 13 cases (52%). Amongst the non-specific changes fatty change was noted in 6 cases (24%). Gambhir *et al.* (*loc. cit.*) and Mehrotra and Agarwal (*loc. cit.*) reported fatty change in 30% and 28% cases respectively in abdonimal tuberculosis. Gupta *et al.* (1956) reported fatty change in 37% cases in abdominal tuberculosis and tuberculous ascites. In the present series 5 out of 6 cases of fatty change in the liver were associated with hypoproteinaemia. These patients were mostly from low income group. Many of them were suffering from chronic malnutrition due to inadequate dietary protein intake. Probably hypoproteinaemia is the cause of fatty liver and fatty change in the liver might be responsible for hepatomegaly in these cases. These non-specific changes are almost similar to the observations made by Gambhir *et al.* (*loc. cit.*). Similar changes could be observed in some chronic infections and/or toxaemic conditions and are not specific of tuberculosis. Thus taking granuloma as diagnostic of hepatic involvement in tuberculous peritonitis (ascitic type), only one case (4%) was positive.

All the 8 cases with hepatomegaly had non-specific changes in the liver including granuloma in one case. The hepatomegaly in these cases would probably be due to non-specific hepatitis.

SUMMARY

Tuberculous peritionitis with ascites have been investigated in 25 patients to find out whether the liver was involved by tuberculous disease or not. Jaundice could not be detected in any case. Liver was enlarged in 8 cases (32%). Hypoproteinaemia and hypoalbuminaemia was present in 9 cases (36%) and 7 cases (28%) respectively; other liver function tests were normal. Needle biopsy of the liver showed hepatic granuloma in one case (4%), non-specific changes in 13 cases (52%) and in 11 cases (44%) the liver tissue was normal.

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PRACTITIONERS' SERIES

Clinical and Occupational Aspects of Cervical Spondylosis

Y. MOHINDRA*, R. P. AGARWAL**
ANIL KUMAR***, B. KUMAR****

Cervical spondylosis is a common degenerative condition and is the commonest cause of disease of the spinal nerves and cords over the age of 50 years. It is characterised by ostephytosis, narrowing of intervertebral joint spaces and foramina and compression of the roots and cord. It runs a prolonged course with intermittent periods of relief. Cervical spondylosis is responsible for varying grades of disability.

This study constituted detailed clinical and occupational analysis of 100 cases of cervical spondylosis seen during the period of 1978-1979 in the Outpatient Department of Orthopaedic Surgery, L.L.R.M. Medical College, Meerut. The diagnostic criteria (based on Brain and Wilkinson, 1967) were: The presence of signs of compression of cervical roots or cord, osteophytosis and narrowing of various joints of cervical spine. All the cases were followed up from 6th month up to 1 year.

CLINICAL FEATURES

Sex and age incidence—Sex incidence and age of onset decade-wise is shown in Table 1.

TABLE 1—SHOWING AGE OF ONSET AND SEX DISTRIBUTION

Age of onset (in decade)	Male	Female	Total
3rd	3	11	14
4th	10	12	22
5th	20	30	50
6th and above	9	5	14
Total	42	58	100

Occupational incidence—Incidence according to occupation is shown in Table 2.

In western countries, cervical spondylosis is the commonest cause of diseases of the spinal cord over the age of 50 years (Brain and Wilkinson, *loc. cit.*; Cyriax, 1971), while in the present series there was an early onset of cervical spondylosis and the average age being 40 years. It was more common among house workers, table workers and shopkeepers (Table 2). This may be explained on the basis of prolonged acute flexion of neck during their work, putting additional strain to cervical spine.

The use of two wheelers (cycle) for long periods may put extra strain on cervical spine inducing early wear and tear of the spinal joints. Out of 100 cases 25 were using two wheelers. Occupation-wise their distribution is shown in Table 2.

Symptoms—Regarding the symptoms, pain, stiffness of neck muscles, tingling, numbness and paralysis of groups of muscles were common. Mixed presentation was common and was present in 80%

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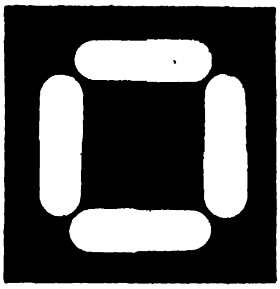

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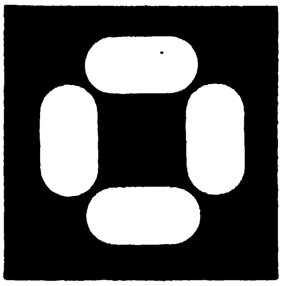

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TABLE 2—SHOWING NATURE OF WORK

Nature of work	No. of cases	No. of persons using two wheelers
Field worker	10	7
Shopkeeper	20	6
Table worker	22	12
House worker	48	—
Total	100	25

cases. Isolated problems were present in 20% cases of which 16% cases had pain in cervicoscapular region and 4% cases had paralysis of ulnar group of muscles. Intermittency of symptoms was present in all the cases.

Distribution of pain—Pain in cervicoscapular region was the commonest presentation (60%). Pain along the ulnar side of the upper limb was present in 30% cases. Pain in the arm, posterior aspect of forearm and radial half of the hand was present in 10% cases. Headache was present in 16% of cases. Tingling and numbness were present in 40% cases. These findings were similar to those of Swiss study (cited by Cyriax, *loc. cit.*) and Wilkinson (1964). It was observed that the disc lesion is rare at $C_{2,3}$, uncommon at $C_{4,5}$ and common at $C_{6,7}$. Todd and Pyle (1928) observed that disc of C_7 is thickest and most unstable and this is responsible for maximum incidence of degeneration.

Associated condition—Associated diseases in upper limbs and neck were present in 30% of cases, like periarthritis of shoulder joint (10%), rheumatoid arthritis (10%), subcutaneous pea-sized nodules over trapezius (8%), and tennis elbow (2%). Such association was also observed by Conlon *et al.* (1966).

RADIOLOGICAL FINDINGS :

Common radiological changes were narrowing of the intervertebral joint spaces and foramina and osteophytosis. Multiple involvement was common (88%). Lower segment of cervical spine was involved in 82% and upper segment in 18% cases. Narrowing of the 6th joint space was commonest (62%).

MANAGEMENT

All the cases were treated conservatively. Drug used was indomethacin 50mg. twice a day after meals. Injection of vitamin B_1, B_{12} and B_6 (3 ml.) was given IM in cases having tingling and numbness. The simple methods of treatment by heat therapy, isometric exercises and drugs were found to be effective in 60% cases in 3 to 4 months, 30% cases were treated by cervical traction in addition to above methods and this relieved symptoms in another 20% cases in 2-3 months. In 20% cases treatment was not appreciably effective.

CONCLUSION

Cervical spondylosis is common among housewives, shopkeepers and table workers in this country. It is also common in persons using two wheelers for long periods and they had an early onset. Lower segments of cervical spine were commonly affected. Simple methods of treatment by heat therapy, isometric exercises and cervical traction, in association with drugs relieved symptoms in majority of cases.

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CASE NOTES

1

Ectopic Endometriosis in Peritoneum with Tuberculosis

D. R. MATHUR*
(MRS.) ANNPURNA MATHUR**
(MRS.) KANTA TIWARI***
M. C. R. VYAS****, K. R. JOSHI*****

Ectopic endometrium has been often found following various surgical operations like hysterotomy, hysterectomy, caesarean section and even appendicectomy. The most common site for ectopic endometriosis is scar endometriosis. Dutta *et al.* (1979)

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reported 8 cases of scar endometriosis following abdominal hysterotomy and tubal ligation.

The present case is reported because of its rare site, involving peritoneum by multiple diffuse nodular area of endometriosis with co-existing tuberculous pathology, which clinically simulated carcinomatous deposits in peritoneum.

CASE REPORT

U. K., a 24-year-old, Hindu, feamale was admitted to Umaid Hospital attached to Dr. Sampurnanand Medical College, Jodhpur, Rajasthan, with the complaints of amenorrhoea of 11 months duration and pain abdomen from last 15 days.

Obstetrical history—The patient had one full term normal delivery 3 years back.

Past menstrual history—The patient attained menarche at the age of 14 years, 4/30 days, regular, flow normal and painful. Last menstrual period was 11 months back.

Examination—On examination, the patient was found to be fairly built, pulse-86/minute, temperature-normal, BP-120/76 mm. Hg. Heart and lungs were normal. Lymph nodes were not enlarged. Abdomial examination revealed multiple soft to firm generalised nodules all over the abdomen.

Vaginal examination : Os was closed, uterus was retroverted bulky, fixed and fornices were thickened.

A provisional diagnosis of secondary abdominal pregnancy was made.

Investigations—X-ray abdomen did not reveal any foetal parts, hence, diagnosis of secondary abdominal pregnancy was excluded. Haematological examination and urine examination were non-contributory except raised ESR (140 mm. 1st hour, Westergren).

Diagnosis—On further abdominal examination, multiple firm nodular masses were felt, hence a diagnosis of metastatic carcinoma or disseminated abdominal malignancy was made.

Surgery—The patient was given gas and oxygen anaesthesia by endotracheal intubation with the help of Boyle's apparatus. Abdomen was opened by supra-umbilical midline incision; peritoneum was opened with difficulty because of marked thickening and adhesions. As soon as peritoneum was opened, multiple irregular tiny nodular growths were seen, which were occupying whole of the pelvic cavity. On examination, uterus was normal in size. Biopsy was taken from various tiny nodular areas and from peritoneal edges. Abdomen was closed in layers.

Histopathology—Multiple sections from various nodular areas revealed benign ectopic endometrial tissue. Most of the glands were showing mild to moderate dilatation with dense compact stroma (Fig. 1, H. & E., × 80). The endometrial tissue was separated by focal areas of tuberculous granulomatous tissue.

Management—Since there was co-existence of endometriosis and tuberculosis, the patient was kept on progesterone and antituberculosis therapy. The patient was given injection progesterone, 500 mg. IM biweekly for one month, weekly for one month, then every fortnightly for 2 months. Antituberculosis therapy was given by combining streptomycin sulphate, isoniazid, ethambutol hydrochloride. Streptomycin sulphate 1g. was administered IM for one month, tablet isoniazid (300 mg. daily orally) for 3 months and tablet ethambutol hydrochloride (400 mg.)-2 tablets twice a day was given for 4 months.

Progress—The multiple nodules in the abdomen almost completely disappeared and the patient was free from other ailments like pain abdomen, anorexia, weakness and fatigue. The ESR also declined from 140 mm. to only 40 mm. 1st hour (Westergren). The weight of the patient also improved from 32 kg. to 38 kg.

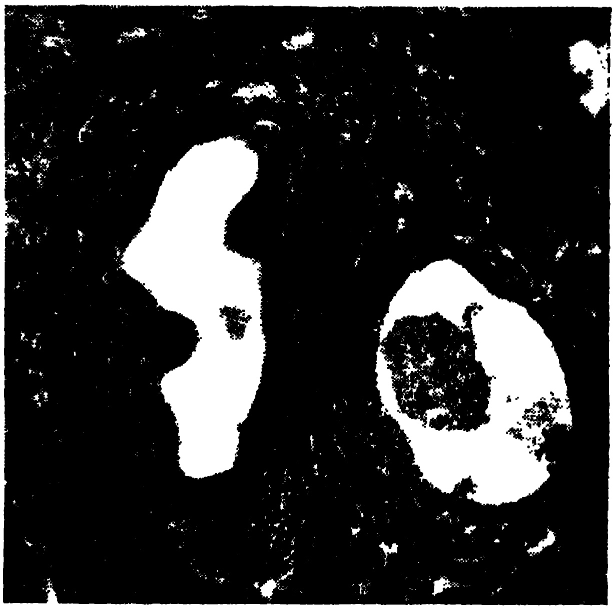

FIG. 1—SHOWING ECTOPIC ENDOMETRIAL TISSUE (DILATED GLANDS AND COMPACT STROMA) IN MICROPHOTOGRAPH

DISCUSSION

Ectopic endometriosis has been commonly observed after gynaecological operation and various other surgical procedures. Association of endometriosis has also been reported with fibroid and carcinoma in postmenopausal women (Das Gupta *et al.*, 1979). Pelvic organs like ovary, tube, cervix and broad ligament are often involved but diffuse involvement of peritoneum is rare. Diffuse involvement of peritoneum by tiny nodules of endometrium is extremely rare. The available literature records only one case of ectopic endometriosis involving peritoneum (Albukerk *et al.*, 1979).

While considering the swelling/lumps of abdomen in females the differential diagnosis of ectopic endometriosis should always be kept in mind.

SUMMARY

A case of ectopic endometriosis with tuberculosis simulating disseminated abdominial malignancy has been reported in a young female of 24 years. The patient became free from ailments by taking progesterone and antituberculosis therapy.

ACKNOWLEDGMENT

Themibutol (Themis Chemicals Ltd.) brand of ethambutol hydrochloride (200 mg.) tablets, isonex (Pfizer) brand of isoniazid were used.

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2

Malignant Pulmonary Adenomatosis

D. N. SINHA*, R. S. BHAKTA**

Malignant adenomatosis is the least common but the most controversial and probably the most interesting malignant lesion of the lung. Its definition, its name, its very existence and its aetiology, cell of origin and clinical and pathological characteristics continue to be a source of confusion. Although some have concluded that it is a variety of adenocarcinoma but there is neither morphohistological nor clinical evidence to firmly support it. However, most workers now agree that it is a valid clinicopathological entity.

The incidence of malignant pulmonary adenomatosis is rare. It was found to be 0.4 to 6.5% (Olsen *et al.*, 1970). Men are affected 4 to 6 times more than women with bronchogenic carcinoma (Barrett, 1958). If one considers only carcinoma of glandular type, 20% occur in women (Watson and Farpou, 1968). The incidence of pulmonary adenomatosis is much higher in women. In one series, 20 of 28 patients were women (Balgrad *et al.*, 1962) and in another series 11 of the 19 patients were women (Jackman *et al.*, 1969). Incidence is common between 50 and 70 years of age. But it has been recorded in a male as young as 16 years (Viragh and Wood, 1962).

CASE REPORT

C. S., 55 years, Hindu, female, a housewife (non-smoker) was admitted in Medical College Hospital, Calcutta. on 2-8-1978 with progressively increasing dyspnoea (grade IV) and cough with scanty mucoid sputum for 9 months. There was no history of fever, haemoptysis or pulmonary tuberculosis in the past.

Examination—She was moderately anaemic but had no clubbing, dependent oedema, lymphadenopathy or cyanosis. Pulse/respiration were 120/26 per minute and temperature was 98°F. BP was 115/70 mm. Hg. Chest expanision was 3.5 cm., trachea was central, apical impulse was in 5th left intercostal space 1 cm. outside the midclavicular line, vocal fremitus and vocal resonance were increased on left side and less so on right side. Percussion note was just dull on left and also on right lower and mid zones. Tubular breathing was heard in left middle and lower parts, but in all other regions the breath sound was vesicular with prolonged expiration and coarse crepitations and rhonchi were present in both lung fields. Liver was palpable, 3.5 cm. below costal arch in right midclavicular line, firm, non-tender and spleen was not palpable. No abnormality was detected in other systems.

Investigations—Haemoglobin—8.5 g.%; WBC—13,500/c.mm. with polymorphs—66%, lymphocytes—20%, eosinophils—12% monocytes—2%. ESR—60 mm./1st hour (Westergren), blood sugar—90 mg.% (postprandial), blood urea—32 mg. %. LE cell phenomenon—negative, VDRL—negative at the time of admission. Sputum smear for AFB repeatedly were negative, sputum for malignant cells were also negative, sputum examination for fungi showed only yeast cells and pseudomycelia and on culture growth of *Candida albicans*. Her previous chest x-ray (Fg..1)) showed dense homogeneous opacity in left side with slight shifting of mediastinum to left, left cupola of diaphragm being raised with patchy nodular opacity confluent at places in right lower and mid zones, whereas subsequent x-ray after admission showed the lesions to have progressed further on both sides and on right side, this time, looking more homogeneous. Pulmonary function test revealed restrictive pattern, i.e., tidal volume—160 ml., forced vital capacity—1150 ml., forced expiratory volume in one second—900 ml. (78.26%), maximum breathing capacity—6.3 litre, FEV_1/FVC—not reduced. Mantoux test with 1 TU—10 mm. induration and ECG was within normal limits. Skin tests for fungi and bronchoscopy could not be done for obvious reasons.

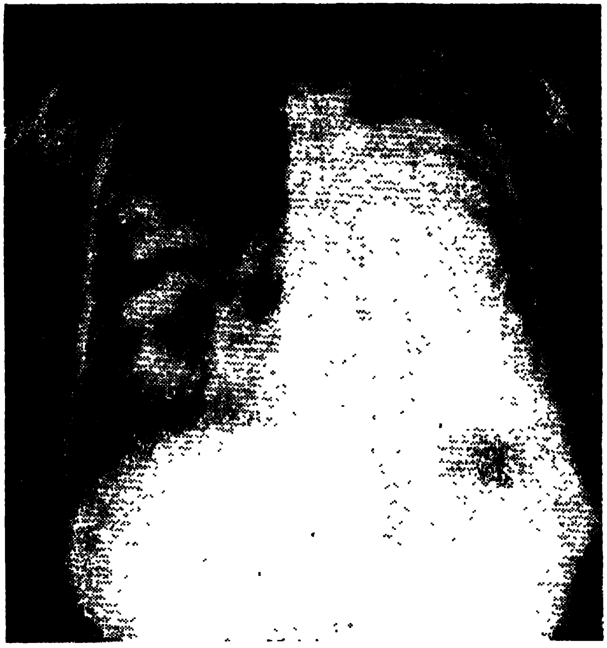

FIG. 1—SHOWING DENSE HOMOGENEOUS OPACITY IN LEFT SIDE WITH SLIGHT SHIFTING OF MEDIASTINUM TO LEFT AND PATCHY NODULAR OPACITIES CONFLUENT AT PLACES IN RIGHT MID AND LOWER ZONES

Management—Treatment was initiated with oral ampicillin, 500 mg. 8 hourly and cloxacillin sodium, 500 mg. 8 hourly for 7 days followed by co-trimoxazole (containing sulphamethoxazole 400 mg. and trimethoprim 80 mg. per tablet) 2 tablets twice daily for next 7 days followed by chloramphenicol, 250 mg. 6 hourly and gentamicin sulphate, 60 mg. 8 hourly for 7 days. Prednisolone, 20 mg. daily in divided doses for 2 weeks. The patient became clinically better (general condition improved, dysponea was relieved to some extent and her weight increased from 37 to 39 kg.), but only to become worse again after a couple of weeks. Dyspnoea mounted, cyanosis appeared and despite all efforts she expired on 20-11-1978. Biopsy could not be done before death since neither she nor her relatives agreed to it.

Histology—However, two specimens, one from either side, taken immediately after her death by percutaneous needle biopsy method, revealed (Fig. 2, H. & E., × 360) that the lesion was

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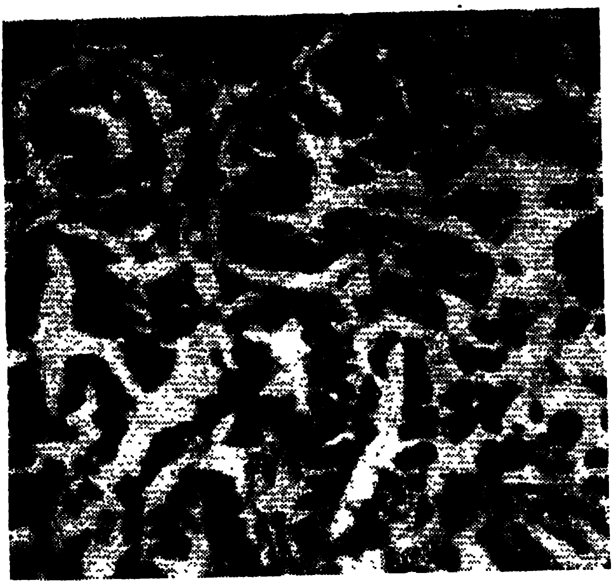

FIG. 2—SHOWING TALL COLUMNAR CELLS WITH SOME PAPILLARY INFOLDINGS LIKE GLANDULAR PATTERN AND WELL PRESERVED ALVEOLAR ARCHITECTURE IN MICROPHOTOGRAPH

composed of tall columnar cells with some papillary infoldings like glandular pattern—the cytoplasm took faint acidophilic stain with basal nuclei having mitotic figures and mucin and the alveolar architecture was well preserved which served as a scaffolding for the growth — a malignant adenomatous tumour.

DISCUSSION

Malignant pulmonary adenomatosis, bronchiolar adenocarcinoma, bronchioloalveolar cell carcinoma are all synonymous. There has been considerable controversy as to whether this tumour arises from the alveolar or bronchiolar epithlium. Electron microscopic studies seem now to have established that the tumour is derived from the alveolar type II cell (Douglas, 1972) which contains osmiophilic, laminated inclusion bodies.

Four types have been described by light microscopy (Hinson *et al.*, 1975; Straus, 1977): (a) Well differentiated, (b) moderately differentiated, (c) poorly differentiated and (d) bronchiolopapillary type (only 0.72%). The conspicuous features on electron microscopy include glandular arrangements of neoplastic cells, abundance of microvilli that project in varying lengths and width from cytoplasmic surfaces and occasional junctional desmosome and terminal bars (Israel and Chalinian, 1976). Malignant pulmonary adenomatosis is the name used by various authors nowadays, because of preponderance of glandular arrangements of neoplastic cells together with mucin and this case perhaps falls in this category. More than 50% cases arise from old scar of inflammation and usually without any relation to smoking or occupation (Crofton and Douglas, 1975).

Malignant pulmonary adenomatosis presents in 3 ways : as a single nodule, as diffuse multiondular lesions which are frequently bilateral (Sobti and Venkataraman, 1977) and as diffuse pneumonic infiltrations involving a single lobe, one lung or both lungs; rarely there may be cavity formation (Berkmen, 1969). Even aspergilloma formation in cavitated tumour has been described (Mays and Hawkins, 1967).

Malassez in 1876 (cited by Olsen, 1970) first described malignant pulmonary adenomatosis. His description of histologic nature of the lesion correlates well with the present case. In 1903, Musser described a diffuse form of cancer of the lung. He pointed out that this type of tumour may involve a single lobe or an entire lung and that it may simulate lobar pneumonia in the stage of grey hepatisation and major bronchi were free. This case here is an example not only of the pneumonic form but also of the diffuse variety of bronchiolopapillary type. The initial symptomatic improvement with antibiotics was probably due to control of associated secondary infection.

In disseminated lesions there has been considerable controversy as to whether the tumour is multicentric in origin. It is believed that the tumour arises from a single focus and spreads along the air passages to the other part of the lung (Douglas, *loc. cit.*). Haematogenous and lymphatic spread are much less common. Involvement of the pleura and pleural effusion is found in 8-10% cases (Ludington *et al.*, 1972).

Roentgenographically, some other diseases enter into the differential diagnosis when diffuse multiondular pattern is present. These include tuberculosis, specially in diabetics and debilitated persons, lobar or lobular pneumonias, particularly fungal and lipoid variety and alveolar proteinosis. About 50% patients remain asymptomatic and detection is ususlly made on routine radiography. Common presenting feature is cough (60%) which may be dry or productive. About 20-25% cases produce abundant mucoid sputum (bronchorrhoea), 1½-4 litres daily (Kress and Allen, 1963). Patients may present with dyspnoea and occasionally with haemoptysis. In 20-30% cases, sputum, becomes positive for malignant cells. As major bronchi remain free, bronchoscopy is of little value. It is most frequently diagnosed by needle or surgical lung biopsy. In patients with marked bronchorrhoea, electrophoresis is said to have shown a particular glycoprotein, a type not observed in bronchorrhoea due to other causes (Viragh and Wood, *lot. cit.*). In late stages of diffuse tumour there will be a restrictive type of functional abnormality.

Surgical resection is the only effective treatment. The best result is obtained after removal when it is a solitary nodule. In diffuse growth, prognosis is poor even when they are resectable. The tumour is said to be not susceptible to radiotherapy or chemotherapy. Due to slow progress of the lesion in some cases, even with diffuse form of the disease, life expectancy may be surprisingly long and survival for several years is by no means unknown (Viragh, and Wood, *loc. cit.*).

SUMMARY

A case of malignant pulmonary adenomatosis is reported. The literature on the subject has been reviewed.

ACKNOWLEDGMENT

We like to thank the Superintendent, Medical College and Hospitals, Calcutta, Dr. S K. Biswas, Professsr of Pathology, Dr. P Sen, Thoracic Surgeon, Medical College and Hospitals and Dr. (Smt.) Maya Sanyal, Mycologist, School of Tropical Medicine, Calcutta.

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3

Complete Rectal Occlusion Requiring Colostomy due to Carcinoma of Prostate

R. C. KESARWANI*

Complete rectal occlusion due to carcinoma of prostate is not common. Due to its rarity, the following case is being reported.

Case Report

A 68-year-old patient presented with acute large bowel obstruction in the emergency department. Routine rectal examination showed an irregular anterior fungating ulcerating mass 6 cm. above the anal verge which was hardly permitting the passage of the examining finger.

Investigations—To relieve the acute obstruction an emergency pelvic colostomy was done and biopsy from the rectal growth was taken. The serum acid and alkaline phosphatase levels were found to be 10.9 and 145 King-Armstrong units respectively. The barium enema showed irregular filling defect in lower part of the rectum along with multiple osteoblastic metastasis in the pelvic bone, lumbar vertebrae and upper parts of both the femurs (Fig. 1).

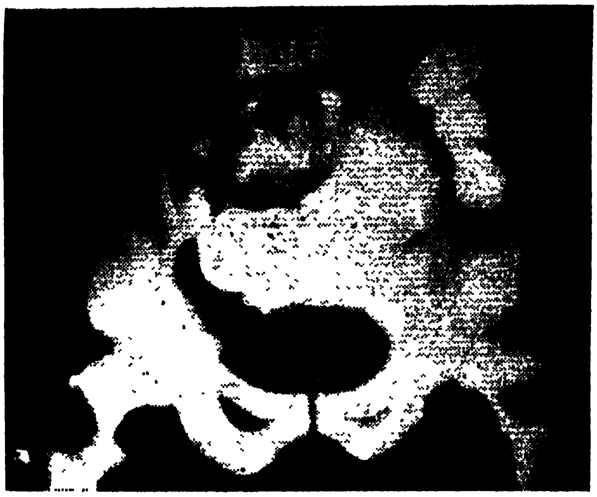

Fig. 1—Showing Irregular Filling Defect in Lower Part of the Rectum along with Multiple Osteoblastic Metastasis in the Pelvic Bone, Lumbar Vertebrae and Upper Part of Both the Femurs in Barium Enema X-ray

Total haemoglobin was 10.6 g.%, WBC was 8,400/c.mm. with polymorphs—78%, lymphocytes—18%, eosinophils—4%. Blood urea was 36 mg.%. Urine examination showed absence of protein and sugar and presence of 2-3 epithelial cells per high power field; culture of urine showed presence of *Esch. coli* with maximum sensitivity to ampicillin.

Diagnosis—The biopsy showed nests of well differentiated adenocarcinoma of prostate (Fig. 2, H.&E., ×100).

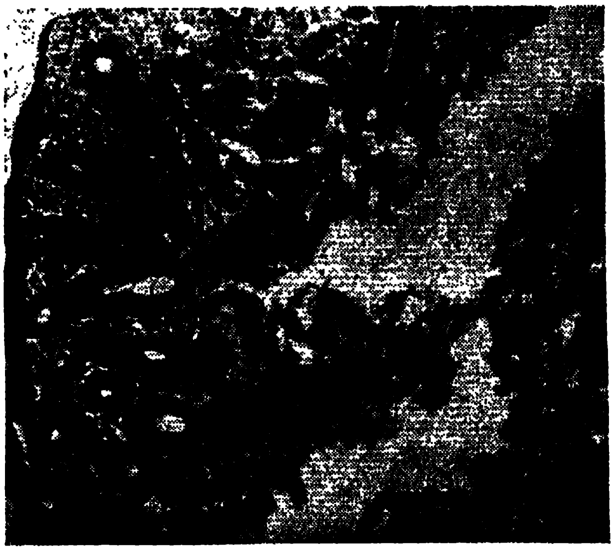

Fig. 2—Showing Features of Well Differentiated Adenocarcinoma of Prostate (Biopsy Taken from Rectal Wall) in Microphotograph

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Management—The patient underwent bilateral orchidectomy and was treated with stilboestrol (Bailey and Love, 1968). Phosphorylated diethylstilboestrol was given IV in dosage schedule of 100 mg. thrice daily for 10 days followed by 200 mg. thrice daily for 5 days and thereafter 300 mg. thrice daily till 20th day.

Follow-up—The patient was discharged and was instructed to attend the hospital for weekly therapy with stilboestrol 200 mg. IV up to 12th week. After completion of IV stilboestrol therapy, the patient was given stilboestrol, 15 mg./ day orally till 8th month when the rectal growth was found to have completely disappeared and the level of serum acid phosphatase came down to normal. Serum alkaline phosphatase was 110 King-Armstrong units. The patient was re-admitted for closure of colostomy after 8 months. He was discharged after 10-day stay in the hospital. He was followed up to 20 months without any recurrence.

DISCUSSION AND COMMENTS

Complete rectal occlusion requiring an emergency colostomy due to adenocarcinoma of the prostate is a rare occurrence. The extension of prostatic growth into the anterior rectal wall may produce difficulties in differentiating it from rectal carcinoma. Since treatment for primary rectal carcinoma is surgical and that of prostatic carcinoma is mainly with hormones and radiotherapy, therefore, correct identification is very important. Although clinical presentation and a few laboratory investigations may be helpful in differentiating the two entities, histological examination of the lesion may be the only method of correct diagnosis.

There is a large variation in incidence of carcinoma of prostate (0.5%-9.0%) involving the rectum (Lasser, 1978). Lazarus (1935) reported some cases of carcinoma of prostate necessitating emergency colostomy.

SUMMARY

An unusual case of adenocarcinoma of prostate involving the rectum causing acute rectal obstruction necessitating colostomy is presented. It is emphasised that every rectal growth should be biopsied since the treatment of primary rectal carcinoma is surgical and that of prostatic carcinoma is mainly with hormone and radiotherapy.

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4

Giant Submaxillary Sialolith

K. D. KOSHAL*, R. S. NAIK**

Calculi in the submaxillary glands or ducts are quite common, but generally the calculi are multiple and small and they vary in size from that of a millet seed to that of a date stone. Giant sialoliths are uncommon. We encountered a giant submaxillary salivary duct calculus measuring 5 cm. × 2.75 cm. (Fig. 1). This is larger than the two reported earlier, namely, 3.75 cm. × 2.5 cm. (Bailey and Love, 1969) and 3.75 cm. × 3 cm. (Gupta, 1968). Hence this case is being reported.

CASE REPORT

A 40-year-old Hindu male, a rural labourer attended Pt. J. N. M. Medical College and associated D. K. Hospital, Raipur on 2-6-1972 with the complaint of a swelling in the floor of the mouth for 20 years. The paitent reported that though he was aware of the swelling in the mouth, he had no discomfort or pain in the swelling till last week. He then noticed that the swelling appeared to have increased in size and there was dragging pain in the swelling which became worst while eating.

Examination—On examination, there was a tender swelling 6 cm. × 3 cm. in the floor of the mouth on the right side, which appeared to have pushed the tongue to the left. There was a bluish discolouration of mucous membrane overlying the swelling. The swelling was stony hard. The opening of the Wharton's duct on right side was patulous but there was no evidence of inflammation. On mastication clear saliva was seen coming out of the right opening. The left opening was normal. Submaxillary salivary gland was only slightly enlarged and tender.

A clinical diagnosis of calculus in the submaxillary salivary duct was arrived at. X-ray examination (Fig. 2) confirmed the diagnosis.

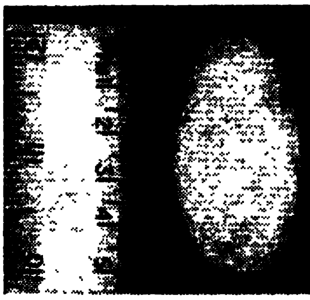

FIG. 1—SHOWING THE CALCULUS AFTER REMOVAL

FIG. 2—SHOWING THE CALCULUS IN X-RAY OF THE JAW

Management—Under local infiltration anaesthesia (2 ml. of 1% lignocaine) a 5 cm. long incision was made in the mucous membrane overlying the calculus. The calculus was removed but the duct was left unsutured. There was no evidence of pus discharge from the duct after removal of stone.

Postoperatively the patient was given antibiotics and frequent mouth washes. He made an uneventful recovery and was discharged on the 7th postoperative day.

DISCUSSION

Ninety-two per cent of salivary calculi are present in the submaxillary salivary gland or duct (Ivy and Curtis, 1936).

Infection is considered to be an important predisposing factor in the development of salivary calculi. The stones are generally round, small, and faceted if multiple and oval in shape

(*Continued on page 15*)

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JOURNAL OF THE INDIAN MEDICAL ASSOCIATION

CALCUTTA, JULY 1, 1981

Hospital Legislation

Every morning the daily Newspaper is studded with news of strike, bundh or gherao at one place or the other. The malady is not restricted to industry, factories or offices, but affects even the hospitals, which are deemed to be reclusories for the sick and are more aptly called the temples of service.

What is a strike ? One could define it in a variety of ways, such as mass absenteesm from work without permission, masss casual leave, refusal to work overtime when work is necessary in public interest, etc. A variety of practices such as go-slow, sit-down, pen-down, stay-in or gherao including some form of violence are being used by striking employees. Whether the strike is legal or not, whether it is the right of worker to go on strike, whether due notice has been given to the employer, whether the strike is a token protest or indefinite one, whether a hunger strike is attempted suicide or not, seem to be the only concern of the present-day administration, employers and politicians. They never seem to pause and think whether the unrest was allowed to simmer too long or whether grievances remained unattended for years and the frustrations were allowed to build up into strikes, bundhs or gheraos. Then is it not the duty of the administrator, the politician or the government to look into why there has to be a strike ? Why is so much unrest ? Why today an administrator has to be gheraoed, why demonstrations, posters, pamphlets or effigy-burning have to take place ? It is true that there cannot be one panacea for all our problems. But efforts can be made and let us start from hospitals.

Today unfortunately, the status of the basic social organisation of health, i.e., a hospital, has not been clearly defined. In 1960 Justice Gajendragadkar included hospitals within the definition of 'Industry'. In 1971 Justice Hidayatulla excluded practically all the hospitals from the scope of 'Industry'. In 1978 Justice Krishna Ayyar included all hospitals within the 'circle of Industry', as he calls it and resurrected Justice Gajendragadkar's judgment. The judgment declared in absolute and clear terms that all hospitals and other service institutions, government or private, charitable or commercial, secular or religious, in which there is employer-employee relationship, are to be included under the Industrial Disputes Act. The judgment, of course, was interpreting the presently existing legislation and in the process it has created more disputes than it has solved by including even hospitals within the 'circle of Industry'. It did not preclude the possibility of some other Act pertaining to hospitals coming into existence.

Today what is needed, is a clear-cut, well-thought-of hospital legislation. This has become further inevitable in the light of the growing universal acceptance of health as a basic human right to be acknoledged, provided and maintained everywhere. This right was confirmed and accepted by the international health conference convened in Alma Ata in 1978. A new hospital legislation clearly defining and balancing the needs of all the components of a hospital, i.e., the professionals, the management, the employees and finally the community, for which these are meant, is imperative. There has to be a fair and reasonable dealing towards all sections of employees but more important than the same are the people who stand in the queue at the outdoor seeking relief of their ailments. Till such time that an improved hospital legislation is not passed, the Industrial Disputes Act, which governs all hospitals and other service institutions, has to be suitably amended to become an enlightened guideline for improving the employee-employer relationship. Our hospitals should develop sound personnel policies and reasonable methods of carrying on dialogue between the management and the employees.

(Reproduced from *IMA News*,
Vol. XIII, No. 9, page 1, 1981)

(*Continued from page 14*)

if large. These patients generally present with swelling of the gland before or during the meal. pain in the swelling which may resemble toothache or signs of submaxillary sialodochitis or inflammation of Wharton's duct. It is interesting to note that in the present case there was no infection in spite of the fact that a large stone had blocked the Wharton's duct. Further the submaxillary gland was functioning quite normally. There was no undue enlargement of the submaxillary gland, though it was tender.

SUMMARY

A giant submaxillary sialolith is being reported as it is very uncommon.

ACKNOWLEDGMENT

We are thankful to Dr.S.L. Agrawal, Dean, Medical College, Raipur and Dr. R. C. Tiwari, Superintendent, D. K. Hospital, Raipur for allowing us to report this case.

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CURRENT TOPIC

Menstrual Behaviour with Steroid Implant

M. N. PAL*, I. PAL**

The concept of substituting the daily oral administration of progestins for fertility control by depot preparation which can feed the target tissue by their sustained release led to the development of the implant method of contraception.

Croxatto *et al.* (1969) reported spotting and break-through bleeding in 30% of the cycles at beginning of the treatment but decreased gradually thereafter to a rate of 8%.

CLINICAL ASPECT

Material for the present study was collected from women attending the postnatal clinic of Safdarjung Hospital, New Delhi from July, 1975 to June, 1976.

Fifty women were selected for the study but only 30 were followed up for the entire period and the rest had irregular follow-up for various reasons. The study started in the 6th post partum week when women first attended the clinic.

Following criteria were followed for selection of patients:

(a) All were young healthy women in the age group of 20-28 years.

(b) All had previous normal menstrual cycle with no medical or gynaecological diseases.

(c) All had one or more children with fully established lactation.

(d) All planned to nurse infants for a minimum period of 6 months.

The women under study were divided into 2 groups:

Study group—This group comprised 25 cases with well established lactation in whom the norethindrone acetate (ENTA) implant, type D with 40 mg. of progrestogen was introduced subcutaneously through a number 11 gauge trocar on the lateral aspect of the thigh in the 6th post partum week.

Control group—This group also included 25 post partum women matched as far as possible with the study group in respect of age, parity, socio-economic status, etc. They used only conventional contraceptives.

Maximum cases were between 25-28 years in the study group and between 20-24 years in the control group. Primipara were not included in the study. Maximum cases belonged to para 3 status, i.e., 44% and 48% in the study and control groups respectively.

Out of the 25 cases in the study group, 17 (68.0%) cases had complete follow-up which means that they attended the clinic every fortnight for a total period of 6 months. On the other hand in the control group only 13 (52.0%) cases completed the study. Only one (4.0%) case in the study group came for regular partial follow-up till the 6th visit and then discontinued because she developed severe menorrhagia and the implant had to be removed before its functional life span. In the control group there were 4 (16.0%) cases who came for regular partial follow-ups. Seven (28.0%) cases in the study group and 8 (32.0%) cases in the control group had an irregular follow-up.

Table 1 shows the various menstrual patterns during lactation in the study and control groups. Only 1 (4%) case in the study group had severe menorrhogia for which the implant had to be removed.

TABLE 1—SHOWING DISTRIBUTION OF MENSTRUAL BEHAVIOUR IN STUDY AND CONTROL GROUPS

Pattern of menstrual cycle	Study group	Control group
Amenorrhoea	16 (64%)	11 (44%)
Scanty regular period	5 (20%)	6 (24%)
Break-through bleeding	2 (8%)	—
Menorrhagia	1 (4%)	2 (8%)
Normal regular cycles	1 (4%)	6 (24%)

DISCUSSION

Menstrual problems with the use of injectable steroid have been widely investigated. Agoestina (1973) reported that normal menses occurred in 42.0% women after one injection of depo-medroxy progesterone acetate. This percentage decreased after subsequent injections. He observed that most worrisome side-effect was amenorrhoea.

Koetswang(WHO, 1974) also conducted a study with 150 mg. of depo-medroxy progesterone acetate administered IM every 90 days in 886 women of low socio-economic status. The main side-effects observed were amenorrhoea and prolonged and/or irregular bleeding. With continuation of injections, the incidence of amenorrhoea increased while the incidence of prolonged and irregular bleeding decreased. After the 6th injection, the incidence of amenorrhoea was 46%.

Bhatnagar *et al.* (1973) published a report on long term contraception with a single silastic implant containing norethindrone acetate. The bleeding pattern showed a distinct dose related effect. There was a minimum disturbance of menstrual cycle with implants A and D. The abnormal menstrual bleeding following implant insertion occurred in the initial 3 to 4 months. Nearly 80% of the cycles were normal with implant D. Of the abnormal menstrual irregularities associated with implant D. the incidence of menorrhagia and ploymenorrhoea were found to be common. However, oligomenorrhoea and intermenstrual bleeding were less in women bearing implant D.

In the present study menstrual abnormalities were more often encountered in the study group. The incidence of amenorrhoea was 64% (16 cases) compared to 44% (11 cases) from the control group. This high incidence of amenorrhoea in the study group might be attributed to the summative effect of norethindrone acetate with that of established lactation in almost all the mothers from the study group.

Scanty regular periods occurred in 20% (5 cases) and 24% (6 cases) in the study and control group respectively. Break-through bleeding occurred in 8% (2 cases) in the study group. Menorrhagia were experienced by only 4% (1 case) in study and 8% (2 women) in the control group.

Normal regular cycles were found more frequently in the control group i.e., 24% (6 women) compared to only 4% (1 woman) in the study group.

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**M.B.B.S., Postgraduate Student, Safdarjung Hospital, New Delhi

Summary

Fifty women in the age group of 20-28 years were selected and divided into study and control groups with 25 cases in each. The majority of women in both the groups had amenorrhoea. Next was scanty regular period which did not cause any inconvenience to the patients. Only in one woman in the study group it was necessary to remove the implant due to severe menorrhagia.

Acknowledgment

We express our deep gratitude to Dr. K. R. Laumas, Head of the Department of Reproductive Biology, All India Institute of Medical Sciences, New Delhi for supplying the implants and constant help and encouragement. We are also obliged to Dr. N. L. Pramanik, Medical Superintendent, Safdarjung Hospital, New Delhi, for allowing us to conduct the study.

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NOTES AND NEWS

Symposium on Nutrition and Diabetes at Hyderabad

A satellite symposium on "Nutrition and Diabetes" will be organised by the Diabetes Association of India, Hyderabad Branch, on November 19-20, 1981 at Hyderabad shortly after the 2nd World Congress on Diabetes in the Tropics to be held at Bombay. The programme consists of symposia and free papers on topics like "Undernutrition and carbohydrate intolerance", "High carbohydrate diet in diabetes management", "Role of fibre in diabetes", "Pancreatic diabetes", etc. Further details may be had from Dr. B. K. Sahay, Organising Secretary, Satellite Syposium, "Mynest", 6-3-852A, Ameerpet, Hyderabad 500 016.

Doctor in the News

Dr. Madan Gopal Garg, Hony. General Secretary, IMA, has been elected a member of Council for the Asian Region of World Medical Association for 1981-82. A former Hony. Secretary and President of the Delhi Medical Association, Dr. Garg is also a member of the Executive Committee of the Medical Council of India and of its Medical Ethics Committee.

Entries Invited for NAMS Awards for 1981-82

The National Academy of Medical Sciences has invited entries for the following awards to be presented at the time of the annual convocation of the Academy in the beginning of 1982 :

(1) Dr. S. Mishra Memorial Award : For the best unpublished work in the field of bio-medical research undertaken by a bio-medical scientist betow 40 years.

(2) Sir Sriram Memorial Award : For the best published work on 'Community medicine' (Community helath), 'Medical education', 'Hospital administration', done in India during the preceding three years. No age restriction for candidates.

(3) Dr. R. M. Kasliwal Award : To be presented to the best worker in the area of 'Colon and its diseases'. No age restriction for candidates.

(4) Dr. Vimla Virmani Award : To be presented to a bio-medical scientist below the age of 45 years for the best outstanding work in the field of 'Rehabilitation of neurologically handicapped patients'.

(5) Sriram Travel Fellowship Scheme : Under this scheme, which is intended for the training of young scientists, the Academy will depute one or more members of the Faculty of one institution/college to another institution to learn any specialised technique for a period of about 10/15 days.

Four copies of each paper should reach Prof. S. K. Lal, Hony. Secretary, National Academy of Medical Sciences, C—II/16, Ansari Nagar, New Delhi 110 029, by *30th September 1981*. Detailed information about the rules may also be had from him.

CORRESPONDENCE

The Editor is not responsible for the views expressed by correspondents

Synechia Vulvae

Sir,—I was very happy to read the case report entitled "Synechia vulvae" by Prasad and Sinha, published in a recent issue of your esteemed journal (*J. Indian M.A.*, 76: 60, 1981).

Vulval synechia is not such an uncommon condition. In a busy paediatric surgical unit, as that of ours, on an average one new case is seen every week (approximately 50 cases each year). The condition is basically a fusion from below upwards of the labia minora due to the rapidly growing tissues in infancy, precipitated by some minor trauma in the region and adhesion formation with superimposed unhygienic condition. It may also be congenital. When acquired, it is akin to the adhesions occurring between the prepuce and the glans penis in the males after a collection of smegma in between.

The treatment of labial synechia is very simple and consists of splitting the fused labia minora exactly in the midline by a blunt instrument like a Spencer Wells artery forceps from above downwards. After splitting the fusion, the same blunt instrument or a small size Hegar's dilator should be used to check on the proper formation of the vagina.

However, as such cases are not commonly seen in general practice, the authors are to be congratulated for reporting their case.

I am, etc.,

G. D. Singhal, M.B.B.S., M.S. (Gen. Surg.), F.R.C.S.E.,
Professor and Head, Paediatric Surgery.

Institute of Medical Sciences,
Banaras Hindu University,
Varanasi.

REVIEWS

Pediatric Emergencies in the Ambulatorium—By George D. Maragos, 1980, Interprint, New Delhi, 24 cm.×18 cm., pp. 218, Rs. 95.00.

This is a very readable book and presents a number of symptoms with which children come either to the Emergency or to the Hospital Out-patients' Clinic or to a Paediatrician's Clinic. The emphasis is on problems faced by developed countries and the book possibly attempts to cover a very large number of topics within a very short span.

Though there are many interesting features on "bread and butter" practical information, the problems, as they obtain in a developing country like ours, find scant attention and as such the usefulness of the book, in the opinion of the reviewer, is limited.

SUBIR K. CHATTERJEE

Bacteriology and Immunity for Nurses—By Ronald Hare and E. Mary Cooke, 5th ed., 1979, Churchill Livingstone, Edinburgh, London and New York, 21.7 cm. × 14 cm., pp. 201.

This short book gives an aerial view of a wide area offering an uninitiated reader an overall picture of medical microbiology. The descriptions of individual microbes are short and precise in most of the cases although, unfortunately, incorrect in a few instances. Cholera vibrio, which has a single polar flagellum, has been described as having a flagellum at each pole. Fusiform bacilli have been described under the heading 'bacteroides' although these organisms belong to the genus fusobacterium. Organisms of the genus bacteroides have not even been mentioned.,

General bacteriology portion is admirably suited for the purpose for which it is written. Methods of sterilisation are adequately dealt with.

Perhaps the immunity portion should have been a little more informative. The reader will hardly form any clear idea about the basic things like antigens, antibodies, immune response, hypersensitivity, etc., although most of the topics have been introduced in this book.

In spite of the shortcomings mentioned above this is a very valuable book written in a simple and concise manner.

PANNALAL BANERJEE

Modern Practice in Immunization—By D.D. Banker, 3rd ed., 1980, Popular Prakashan, Bombay, 21.7 cm. × 14 cm., pp. xii + 384, Rs. 16.00.

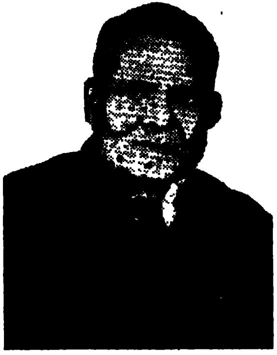
In medicine, one of the glamorous subject today is immunology. From the days of Louis Pasteur and Burnet, it has traversed a long way and unfolded many of the secrets of immunity. The field of immunology today extends from the study of man's resistance to infection, to the study of blood groups, tissue grafts and drug reactions. It is becoming increasingly difficult for a practitioner of general medicine to keep track of these developments in immunology for use in his general practice. On this account, the present book deserves some attention. The author is successful in compiling within about 400 pages most of the available information on immunisation, immunising agents, their storage, modes of administration and reactions. It will make an useful addition to the book-shelves of health officers, private practitioners and also to those engaged in the practice of immunisation.

B. N. GHOSH

OBITUARIES

Dr. Kamal Chandra Roy

Dr. Kamal Chandra Roy, a founder member of the Suri Branch of IMA in West Bengal, died of heart failure on 6-5-1981. Born on 22-11-1912 Dr. Roy graduated in medicine from Carmichael (now R. G. Kar) Medical College in 1939 and started private practice at Suri in Birbhum District. During his long practising career he worked with the zeal of a devoted social worker and earned the love and respect of all sections of people. He leaves behind his wife and three sons.



DR. K. C. ROY

DR. V. N. RANE

Dr. V. N. Rane

Dr. V. N. Rane, a member of the Bhusaval Branch of IMA in Maharashtra, died of heart attack on 14-5-1981. Born on 4-10-1937 Dr. Rane, who stood first in the I.Sc. examination from B.M.J. College, Jalgaon, took his M.B.B.S. degree from B.J. Medical College, Pune, in 1956. Later, he qualified for M.S. (ENT) and M.S. (Gen. Surg.) from the same college. He started consultant practice and opened a nursing home in 1968 at Bhusaval. He was associated with many social activities and philanthropic organisations and educational institutions. He is survived by his wife, three daughters and only son.

Dr. Jnanendra Nath Moitra

Dr. Jnanendra Nath Moitra, a member of the Jalpaiguri Branch of IMA in West Bengal, died of myocardial infarction on 31-3-1981. He was 69. After qualifying for the profession Dr. Moitra started private practice in Jalpaiguri and later devoted himself more and more to social work. Since his joining the IMA he held many important portfolios including the Secretaryship of the branch. It was through his efforts that the local IMA could free the land earmarked for its building from the possession of unauthorised settlers. Under his leadership the local branch opened treatment centres and conducted mass inoculation in different parts of the town during the severe floods of 1968. A keen sportsman in his younger days Dr. Moitra used to take part in every cricket match organised by the Association. He was also a commissioner of Jalpaiguri Municipality for several years. He rendered selfless service to the local Ramkrishna Missions in their outdoor dispensary and maternity centre for nearly 40 years.

SUPPLEMENT

VOL. 77, NO. 1 : CALCUTTA : JULY 1, 1981

Branch Notes

ANDHRA PRADESH STATE BRANCH

Pithapuram Branch—In the annual general meeting held on 7-12-80 under the chairmanship of Dr. K. Bhaskara Rao, the following were elected office-bearers for 1980-81: President Dr. Durga Das and Dr. K. Hemanadha Rao; Secretary and Treasurer —Dr. K. Krishna Mohan Rao; Jt. Secretary—Dr. S. Veerabhadra Rau; Member of Central Council—Dr. K. Krishna Mohan Rao; Member of State Council—Dr. J. Seshagiri Rao.

The meeting was followed by a scientific lecture given by Prof. C. Mallikharjuna Rao from Rangaraya Medical College, Kakinada, on 'Diabetes Mellitus'. Dr. P. S. Sarma, Senior Vice-President of the State Branch, who was also present on the occasion, explained to the members the organisational set-up of IMA and the benefits that the Association offers to its members.

BENGAL STATE BRANCH

Barasat Branch—In the annual general meeting held on 6-12-80 the following were elected office-bearers for 1980-81: President—Dr. Lokendra Nath Chakraborty; Vice-Presidents—Dr. Benod Behari Guha and Dr. Monilal Mukherjee; Hony. Secretary - Dr. Asit Baran Banerjee; Asstt. Secretaries—Drs. Nandan Chakraborty, Asok Ray and Hironmoy Saha (also Treasurer); Members of State Council—Drs. D. N. Das, L. N. Chakraborty, N. K. Das, A. B. Banerjee and M. Hossain; Member of Central Council—Dr. Baidyanath Mukherjee.

Naihati Branch—In the annual general meeting the following were elected office-bearers for 1980-81 : President -Dr. B. N. Sadhukhan; Vice-Presidents—Drs. Bibhuti Biswas B. K. Kundu and R. C. Roy; Hony. Secretary—Dr. Shyamal Kr. Ghosh; Asstt. Secretaries—Drs. Kamal Ranjan Adhikary, Amarendra Nath Mazumder, Kartick Sadhukhan and Mukul Bikash Das; Members of State Council—Drs. Ramesh Ch. Roy, Amarendra Nath Mazumder, Niranjan Ghosh and Kamal Ranjan Adhikary: Member of Central Council—Dr. B. N. Sadhukhan; Treasurer-Dr. Dipak Kumar Roy; Internal Auditor—Dr. Shyamal Kumar Banerjee.

BIHAR STATE BRANCH

Jagannathnagar Branch—In the annual general meeting held on 27-11-80 at the Plant Hospital, Dhurwa, with Dr. (Mrs) Chitra Bhattacharya in the chair the following were elected office-bearers of the branch for 1980-81: President —Dr. R. B. Sinha; Vice-President—Dr. (Miss) G. Tirkey; Hony. Secretary—Dr. A. B. Mandal; Treasurer—Dr. P. Aich; Jt. Secretaries—Dr. D. Culumba and Dr. A.K. Sinha; Member of Central Council—Dr. N. P. Singh; Members of State Council—Drs. S. K. Sinha, S. K. Sen, D. L. Das and (Mrs.) Chanda Mukherjee

GUJARAT STATE BRANCH

Nadiad Branch—A symposium on 'Anabolics' was held on 23-11-80 at N. M. A. Hall, Red Cross Building, Nadiad, under the chairmanship of Dr. P. P. Mehta. The speakers were Dr. Bharat S. Shah and Dr. Lalit J. Shah, both from Ahmedabad.

MADHYA PRADESH STATE BRANCH

Gwalior Branch—In the annual general meeting held on 19-12-80 the following were elected office-bearers for 1980-81: President —Dr. A. K. Govila; Vice-President—Dr. R. K. Nigam, Hony. Secretary—Dr. O. N. Kaul; Jt. Secretaries—Dr. B. P. Purohit and Dr. N. N. Laha; E.S.I.S. Representative—Dr. R. K. Chhaparwal; Representative of Lady Members—Dr. (Mrs.) R. Kaul; Auditors—Dr. R. P. Mathur and Dr. K. L. Sharma.

MAHARASHTRA STATE BRANCH

Chinchwad Pimpri Branch—In the annual general meeting held on 26-9-80 the following were elected office-bearers for 1980-81: President—Dr. K. L. Vaswani; Vice-President—Dr. S. R. Kale; Hony. Secretary—Dr. V. M. Patole.

ORISSA STATE BRANCH

Dhenkanal Branch—The new branch was formed at a meeting of the medical practitioners of Dhenkanal on 15-11-80. The following were elected office-bearers of the new branch: President —Dr. D. N. Bal; Vice-President -- Dr. J. Mulia; Secretary—Dr. K. B. Sahoo; Jt. Secretary—Dr. B. B. Nanda; Member of Central Council --Dr. P. K. Bhuyan.

Kendrapara Branch--The new branch was formed at a meeting of the registered medical practitioners stationed at Kendrapara in Cuttack district on 5-9-80. The following were elected office-bearers of the new branch: President—Dr. S. Kanungo; Vice-President—Dr. Govinda Ch. Dash; Secretary-cum-Treasurer—Dr. Pravash Kumar Das; Jt. Secretaries—Dr. B. C. Parida and Dr. Nirnajan Parida; Member of State Council—Dr. Babaji Ch. Patra; Member of Central Council—Dr. Satchitananda Das.

RAJASTHAN STATE BRANCH

Banswara Branch—The following were elected office-bearers for 1980-81 at the annual general meeting held on 10-10-80: President—Dr. O. P. Mathur; Vice-President—Dr. S. N. Gaur; Hony. Secretary—Dr. K. G. Taly; Jt. Secretary—Dr. P. C. Veerwal; Treasurer--Dr. Yudhishthir Trivedi; Members of State Council - Dr. D. N. Sharma and Dr. Subodh; Member of Central Council—Dr. H. K. Asopa; Alternate Member—Dr. Usha Bhatia; Cultural Convener—Dr. S. K. Kulshreshtha.

Bharatpur Branch—In the annual meeting the following were elected office-bearers for 1980-81: President—Dr. S. P. Johari; Vice-President—Dr. P. L. Bansal; Hony. Secretary—Dr. R. D. Goel; Treasurer--Dr. V. D. Bansal; Jt. Secretary—Dr. Sushil Sharma; Member of State Council—Dr. Fateh Singh; Member of Central Council—Dr. M. M. Bapana.

Chittorgarh Branch--In the annual meeting the following were elected office-bearers for 1980-81: President—Dr. S. C. Shukla; Vice-President--Dr. B. S. Rathore; Hony. Secretary—Dr. B. L. Khabya; Jt. Secretary-cum-Treasurer—Dr. K. C. Jain; Member of Central Council—Dr. R. D. Bhatt; Member of State Council—Dr. H. S. Sisodia.

Dholpur Branch--In the annual meeting the following were elected office-bearers for the session 1980-81: President—Dr. K. Arya; Vice-President—Dr. R. G. Agarwal; Hony. Secretary —Dr. C. S. Arora; Jt. Secretary--Dr B. M. Agarwal; Treasurer —Dr. R. K. Gupta; Member of Central Council--Dr. N. C. Jain; Member of State Council—Dr. (Mrs.) Sushila Sharma.

Dungarpur Branch —In the annual meeting the following were elected office-bearers for 1980-81: President—Dr. J. N. Mathur; Vice-President—Dr. N. K. Jain; Hony. Secretary—Dr. Suresh Joshi; Jt. Secretaries—Dr. Girish Jerath (for headquarters) and

Dr. Hamant Joshi (for district); Treasurer—Dr. M. L. Sharma; Members of State Council—Dr. K. Abbas and Dr. B. L. Bhulawat; Member of Central Council—Dr. B. N. Upadhyay; Convener, Ladies Section—Dr. (Mrs.) Zehra Abbas.

Jaipur Branch—In the annual meeting the following were elected office-bearers for 1980-81: President—Dr. P. L. Nawalkha; Vice-Presidents—Dr. R.P. Garg and Dr. Jagat Ram Arora; Hony. Secretary—Dr. N. S. Bhandari; Treasurer—Dr. B. C. Temani; Auditor—Dr. Dinesh Jindal; Members of State Council—Drs. G. T. Bhatt, Gope Ramchandani, G. P. Choudhary and Kamal Jain; Members of Central Council—Dr. M. L. Gupta and Dr. P. N. Bhargava.

Jhalawar Branch—In the annual meeting the following were elected office-bearers for the session 1980-81: President—Dr. D. N. Verma; Vice-President—Dr. L. K. Bhargava; Hony. Secretary—Dr. S. K. Gupta; Jt. Secretary—Dr. D. R. C. Mathur; Treasurer—Dr. C. P. Bhala; Member of Central Council—Dr. I. U. Haque; Member of State Council—Dr. (Mrs.) Chitra Mathur.

Jodhpur Branch—In the annual meeting the following were elected office-bearers for 1980-81: President—Dr. V. K. Razdan; Vice-Presidents—Dr. A. S. Mehrotra and Dr. A. K. Chhangani; Hony. Secretary—Dr. S. R. Shukla; Jt. Secretary—Dr. R. K. Jain; Treasurer—Dr. Rakesh Gaur; Member of State Council—Dr. D. R. Mathur; Member of Central Council—Dr. P. K. D. Shah.

Ratangarh Branch—In the annual meeting the following were elected office-bearers for 1980-81: President—Dr. H. M. Sarin; Vice-President—Dr. P. P. Gupta; Hony. Secretary—Dr. P. R. Sharma; Jr. Secretary—Dr. Ibrahim Chhimpa; Treasurer—Dr. S. K. Kukar.

Sri-Ganganagar Branch—In the annual meeting the following were elected office-bearers for 1980-81: President—Dr. A. S. Gehlot; Vice-President—Dr. R. K. Sharma; Hony. Secretary—Dr. O. P. Kothari; Jt. Secretary—Dr. K. D. Bhardwaj; Treasurer—Dr. Ravi Agarwal; Member of Central Council—Dr. Rattan Chand; Members of State Council—Drs. J. P. Saxena, O. P. Goyal and V. B. Kalra.

Tonk Branch—In the annual meeting the following were elected office-bearers for 1980-81: President—Dr. M. M. Gogna; Vice-President—Dr. D. N. Sinha; Hony. Secretary—Dr. V. P. Agarwal; Jt. Secretary —Dr. M. K. Bohra; Treasurer—Dr. V. K. Varshneya.

TAMIL NADU STATE BRANCH

Anamallai Branch—In the annual general meeting held on 26-10-80, the following were elected office-bearers for 1980-81 : President—Dr. (Mrs). Maya Philip ; Vice-President—Dr. C. G. Raja Singh ; Hony. Secretary—Dr. T. R. Pariyakaruppan ; Jt. Secretary—Dr. Shankar.

Madras City Branch—In the annual general meeting held on 29-11-80, the following were elected office-bearers for 1980-81 ; President—Dr. C. Ranganathan ; Vice-Presidents —Dr. P. B. Sadasivan and Dr. G. V. Ramakrishnan ; Hony. Secretary—Dr. V. Raju ; Jt. Secretary—Dr. B. Gowrishankar ; Members of Central Council—Drs. G. Ramachandra Murthy, T. M. Kumaraswami, A. V. Chandrasekaran, C. Kasiviswanathan, N. K. Sampath, N. Krishnamurthy and N. Ramadas; Alternate members—Drs. K. Rama Rao, T. K. Narasimha Reddy, (Mrs) Elizabeth Viswanathan and C. B. Baskaran.

Pattukottai Branch—At the annual meeting held on 14-9-80, the following were elected office-bearers for 1980-81 ; President—Dr. T. A. K. Rathinam ; Vice-President—Dr. T. C. Bhargavi ; Hony. Secretary—Dr. R. Rajagopal ; Jt. Secretary—Dr. S. Beesapathy ; Treasurer—Dr. V. Sambasivam ; Member of Central Council—Dr. (Mrs.) Nileufer Khader.

Ramanathapuram Branch—At the annual general meeting held on 16-11-80, the following were elected office-bearers for 1980-81 : President—Dr. Anwar Hussain ; Vice-President—Dr. Meenakshisundaram ; Hony. Secretary—Dr. T. Aravaindaraj ; Jt. Secretary—Dr. B. Gopalakrishna Acharya; Treasurer—Dr. F. M. Abdulla.

Salem Branch—At the annual general meeting held on 26-10-80, the following were elected office-bearers for 1980-81 : President—Dr. S. Kasthuri ; Vice-President —Dr. G. Seedamani ; Hony. Secretary—Dr. K. Janakiraman ; Jt Secretary—Dr. V. Sivaprakasam ; Treasurer—Mr. T. K. P. Thirugnanasambandam ; Members of Central Council—Dr. S. R. Rajaram and Dr. M. Thirunavukkarasu.

South Arcot Branch—At the annual general meeting held on 20-9-80, the following were elected office-bearers for 1980-81 ; President—Dr. S. Babu ; Vice-Presidents—Dr. D. Shanmugam and Dr. S. Vatsala ; Hony. Secretary—Dr. V. T. D. Kumaraswami ; Jt. Secretary—Dr. Stanley Chandran.

Tiruchirapalli Branch—At the annual meeting held on 16-11-80, the following were elected office-bearers for 1980-81 ; President—Dr. T. K. Thirunavukkarasu ; Vice-President —Dr. M. Sivakkanna ; Hony. Secretary—Dr. S. Palliniyandi ; Jt. Secretary and Treasurer—Dr. R. Kalaikkevan ; Members of Central Council—Drs. R. Genesan, N. V. Muthukrishnan and S. Palaniyandi.

Villupuram Branch—At the annual meeting held on 16-11-80, the following were elected office-bearers for 1980-81 ; President—Dr. M. V. Rao ; Vice-Presidents—Dr. P. Suseela and Dr. P. A. Sivakumar ; Hony. Secretary —Dr. G. Rajaraman ; Jt. Secretary—Dr. N. N. Neealakantan ; Treasurer—Dr. I. Soundararajan ; Member of Central Council—Dr. P. A. Bhandary.

UTTARPRADESH STATE BRANCH

The following were elected office-bearers of the State Branch for 1980-81 ; President—Dr. Satyanand (Kanpur) ; Immediate Past-President—Dr. B. K. Kapur (Kanpur) ; Vice-Presidents—Drs. R. C. Gupta (Allahabad), R. P. Agarwal (Rampur) and Mam Chandra (Lucknow) ; Hony. State Secretary—Dr. N. L. Agarwal (Varanasi) ; Treasurer—Dr. A. K. Rastogi (Varanasi) ; Joint Secretaries—Dr. M. A. Siddiqui (Varanasi) and Dr. Prem Nath (Kanpur) ; Members of State Working Committee—Drs. B. N. Gupta (Lucknow), R. B. Dwivedi (Gonda), S. K. Nigam (Kanpur), D. N. Gupta (Tundla), M. M. Farooqi (Kannauj), P. S. Sood (Farrukhabad), N. K. Bhatnagar (Allahabad), V. K. Gupta (Rampur), H. P. Agarwal, R. P. Agarwal (Lucknow), R. N. S. Agarwal (Amroha), Naim Hamid (Kanpur), O. P. Garg (Agra), R. C. Sharma (Etawah) and P. N. Singh (Varanasi) ; Members of the Central Working Committee—Drs. Satyanand (Kanpur), N. L. Agarwal (Varanasi), B. S. Mehta (Varanasi) and B. K. Kapur (Kanpur) ; Hony. Chapter Secretary, IMA Academy of Medical Speciality, UP Chapter—Dr. (Km) Veena Misra (Agra) ; Representative from UP State Faculty, IMA College of General Practitioners—Dr. J. K. Agarwal (Moradabad) ; Permanent Invitee to Working Committee—Dr. S. P. Gupta (Varanasi).

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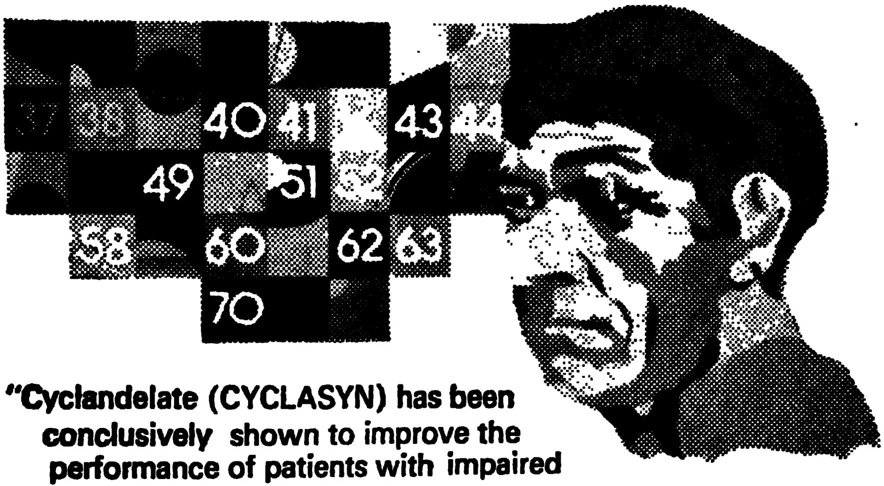

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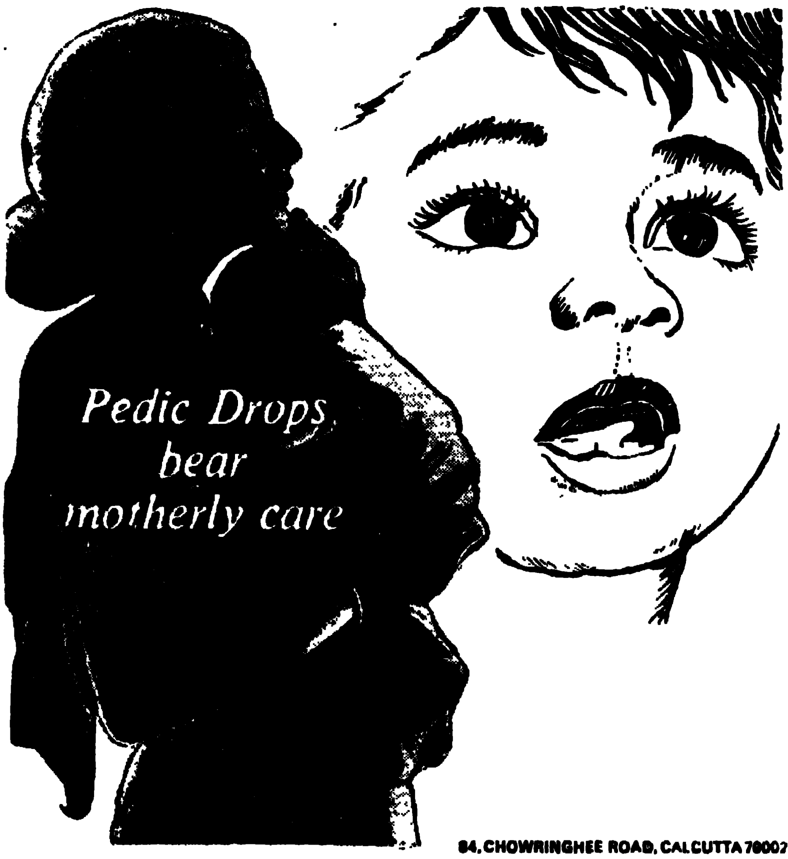

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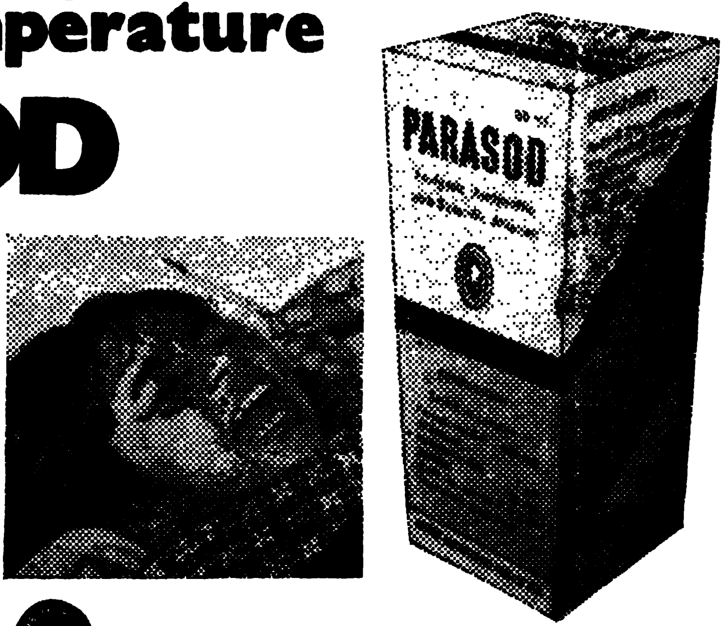

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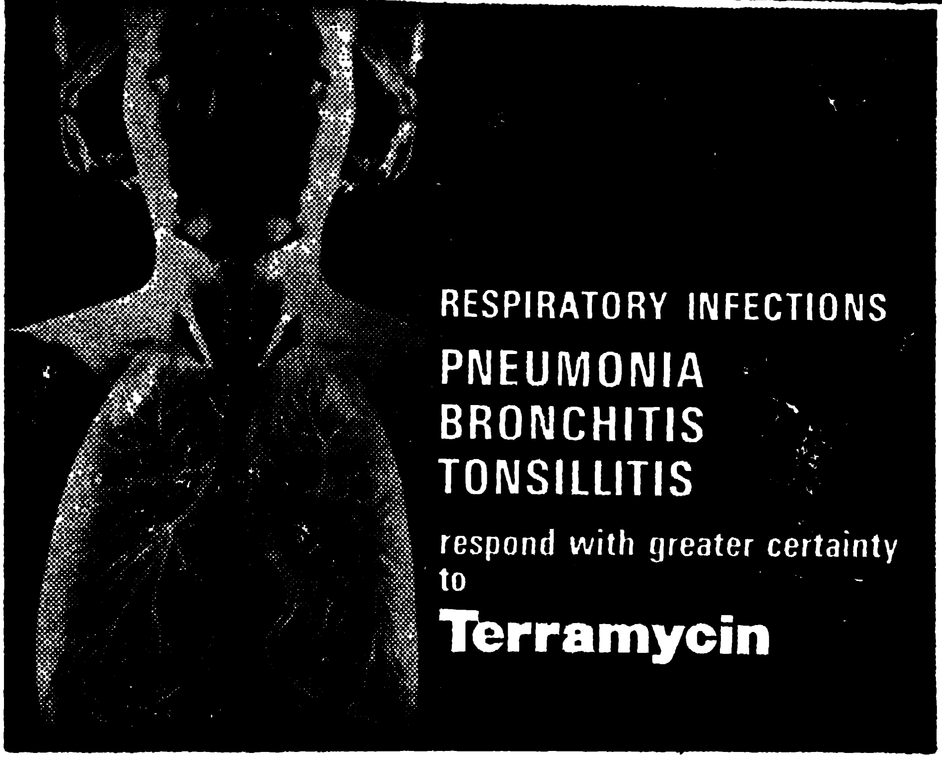

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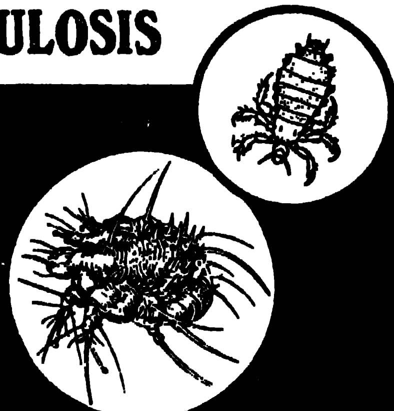

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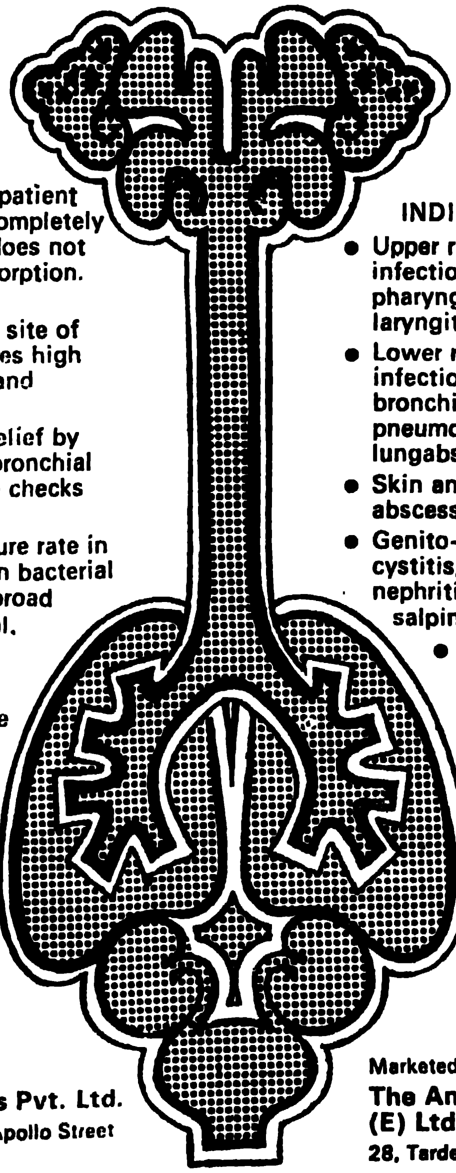

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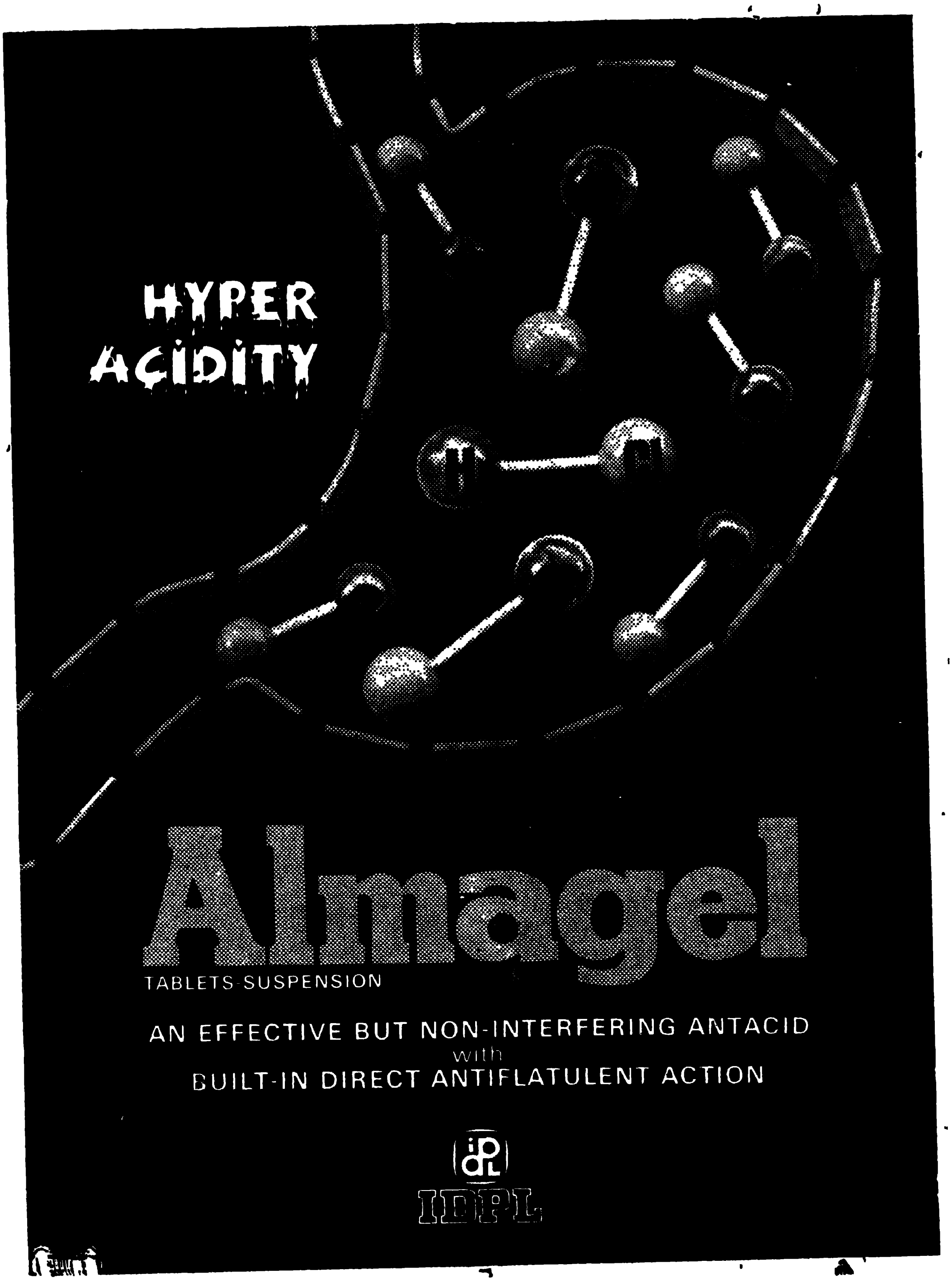
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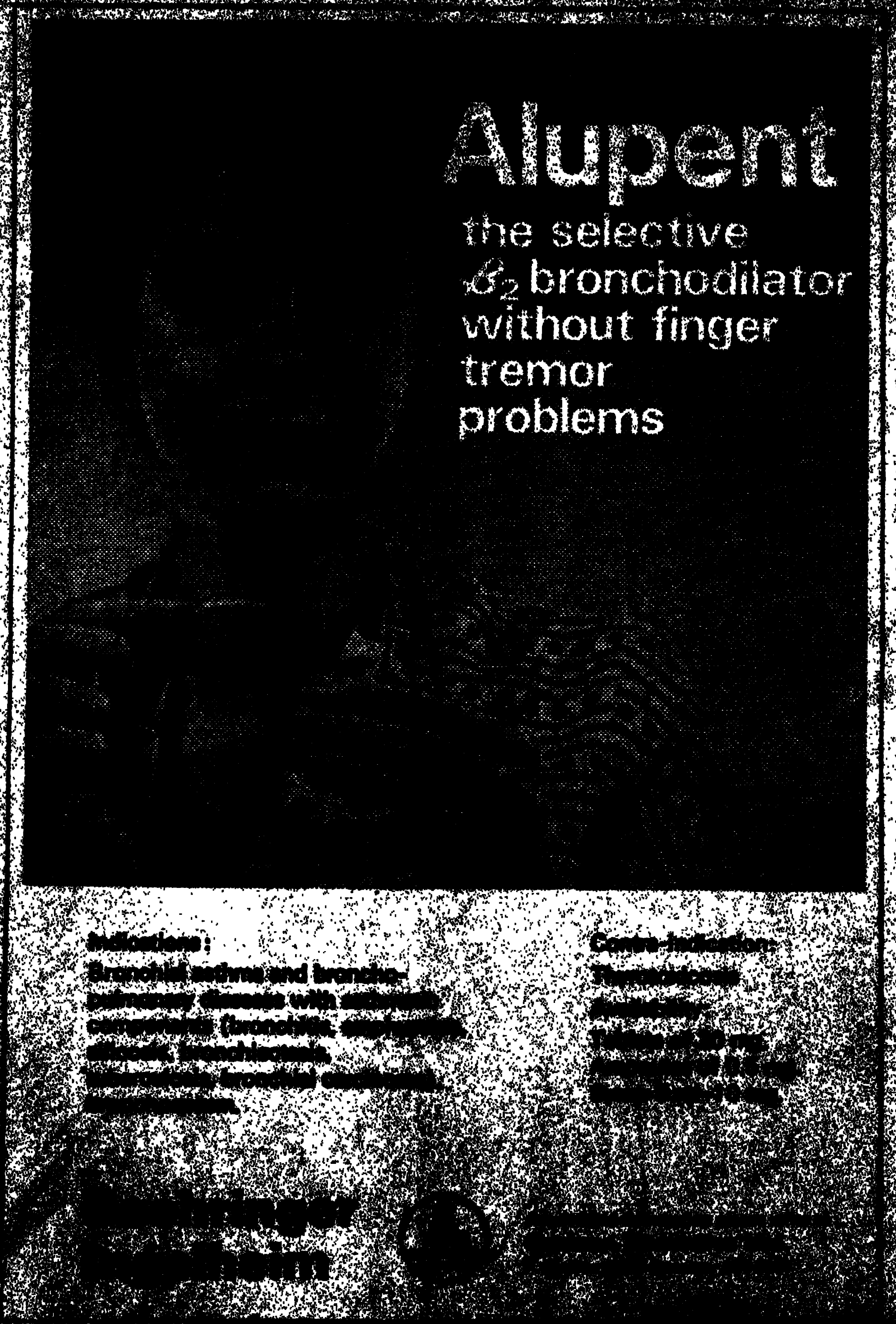

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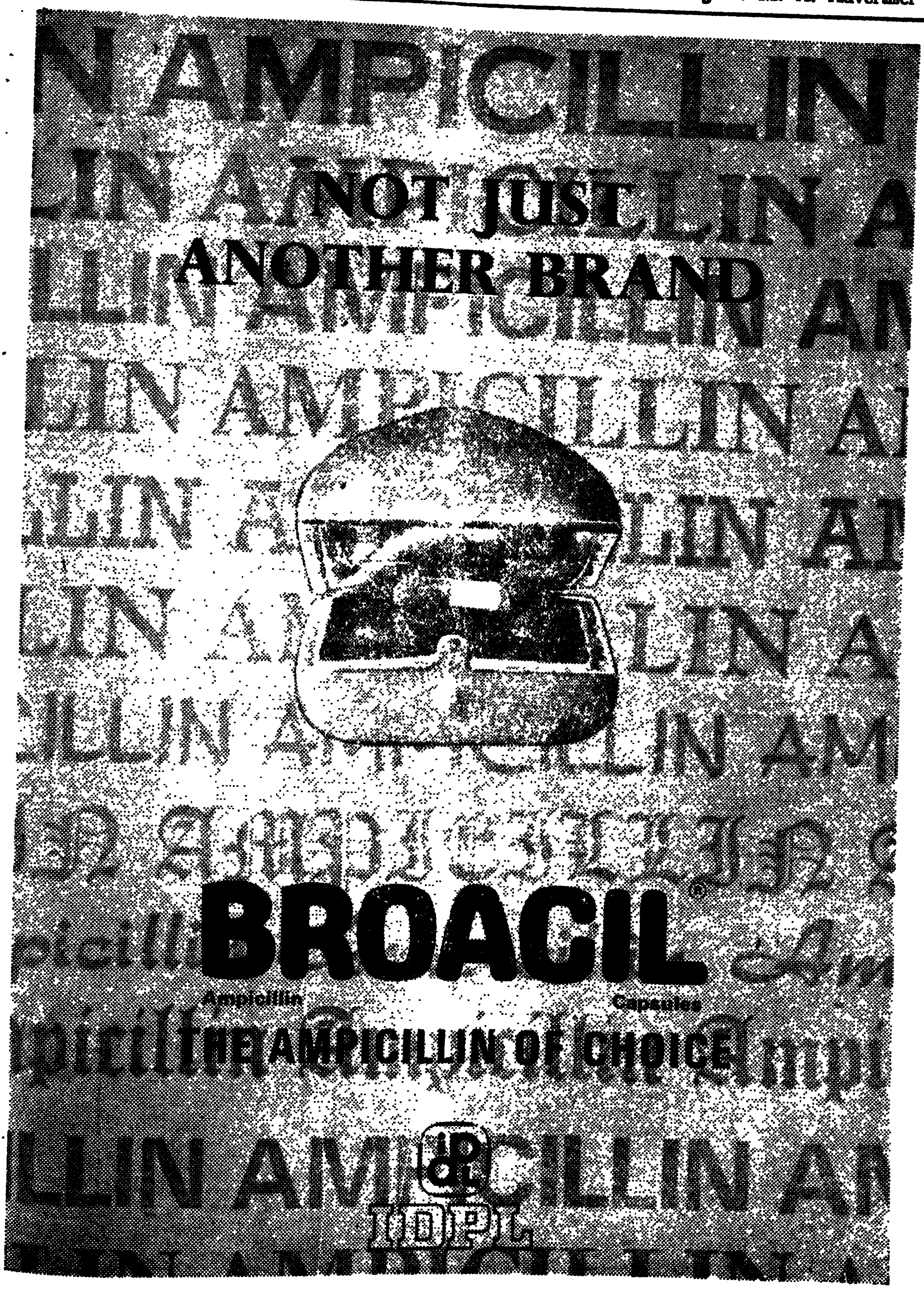

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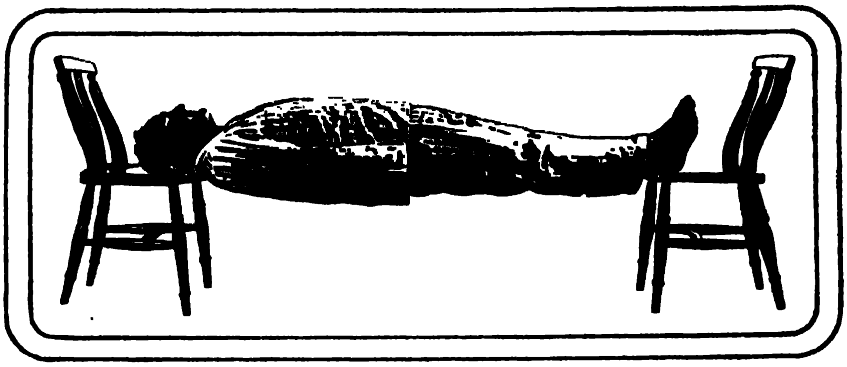

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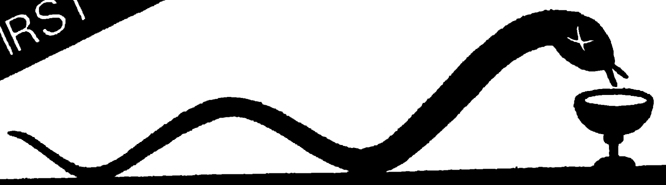

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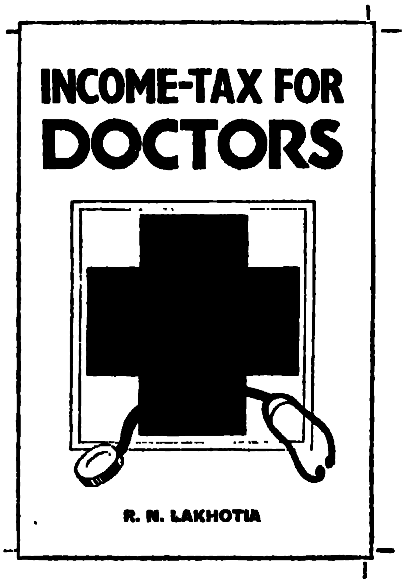

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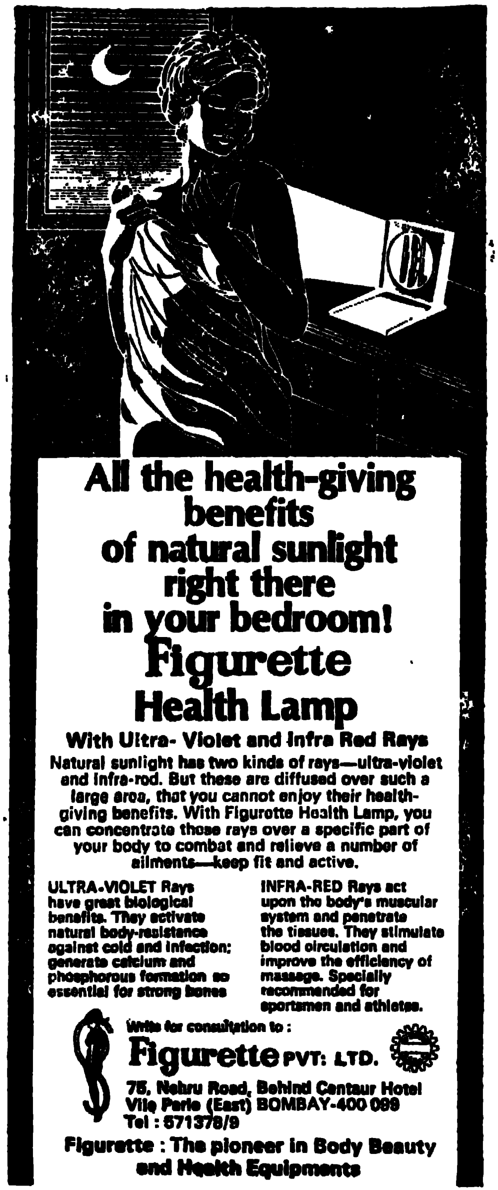

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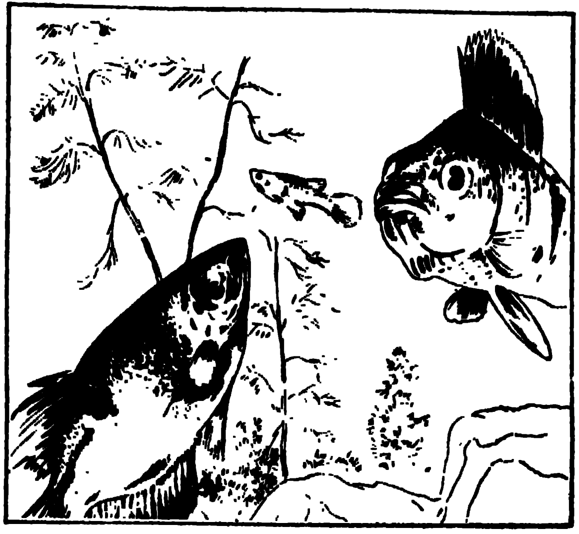

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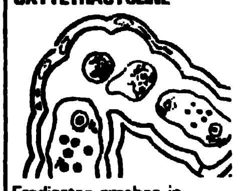

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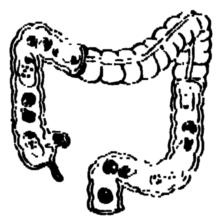

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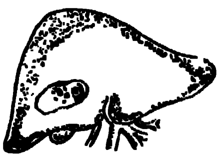

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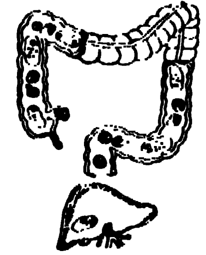

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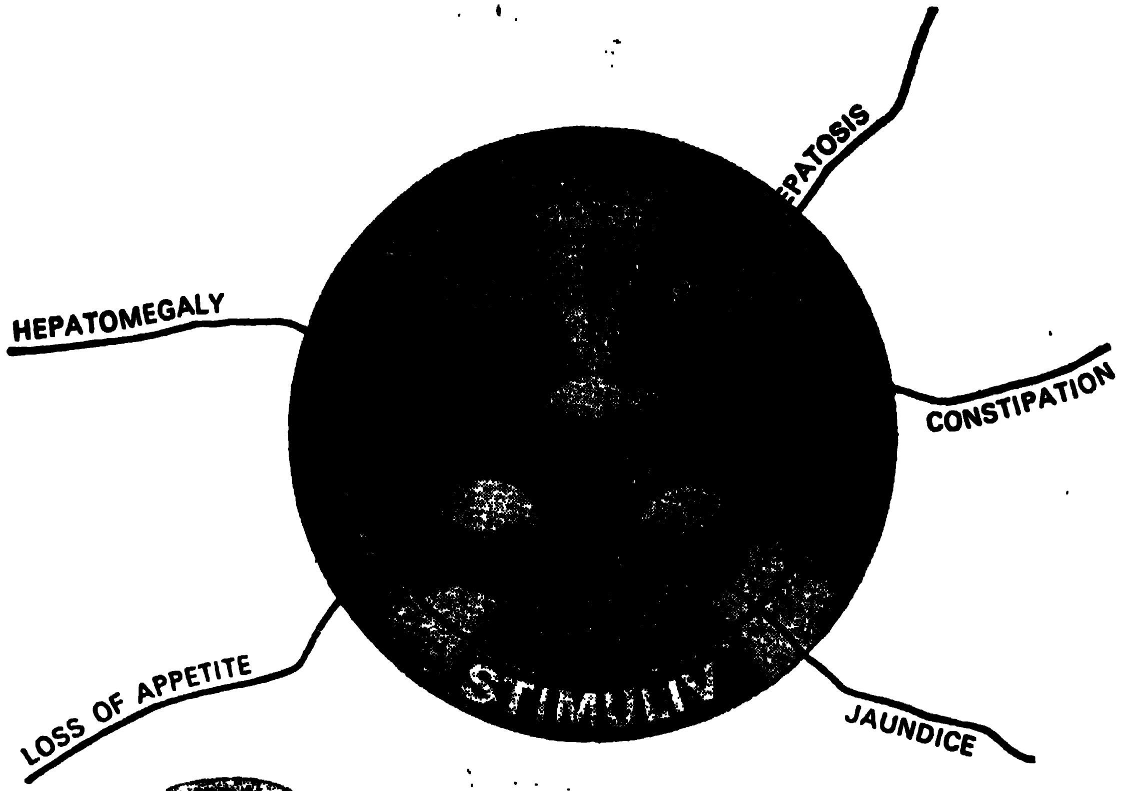

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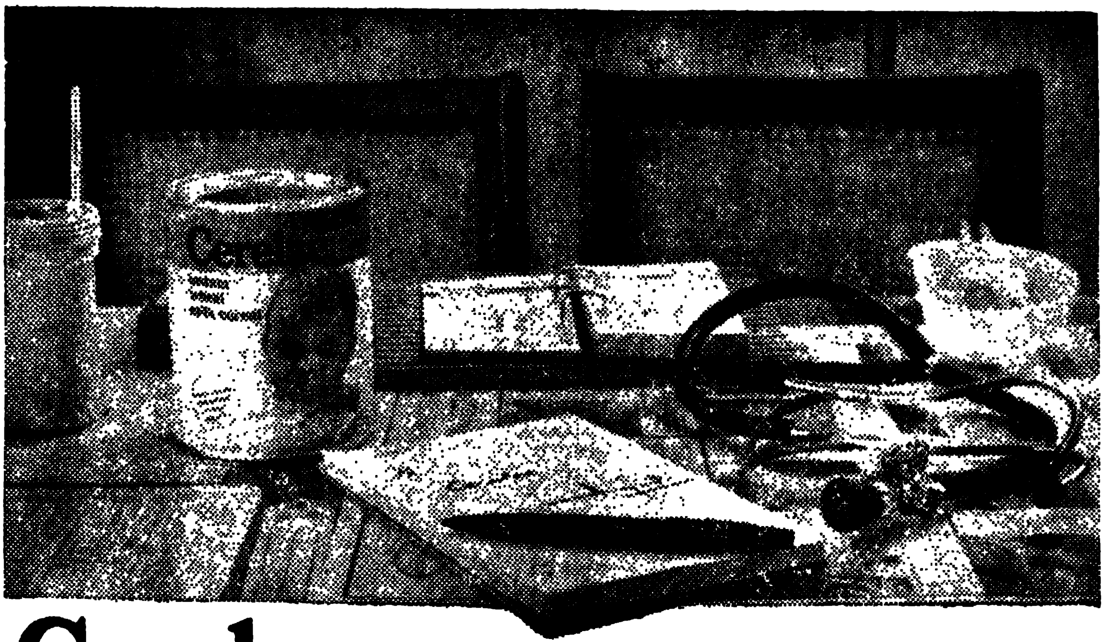

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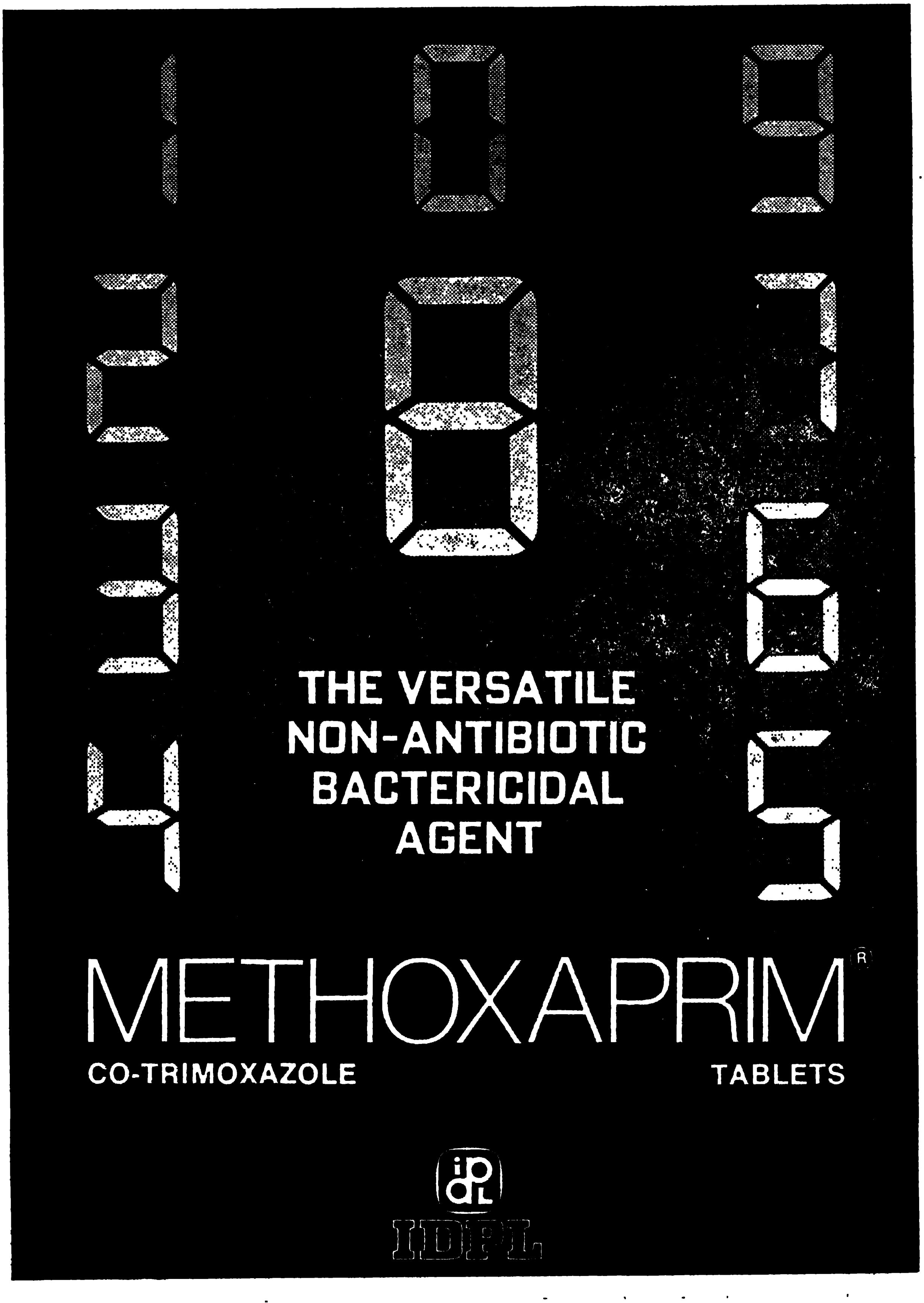

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PUBLISHED TWICE A MONTH
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CALCUTTA
JULY 16, 1981

ORIGINALS AND PAPERS

1

Some Observations on Hyaluronidase Activity of Tumour Tissue

S. K. DAS*, P. C. CHATTERJEE**

[Received for publication April 18, 1980]

Modern research on tissue permeability and related problems started when Duran-Reynals (1928) discovered the 'spreading factor' in testicular extracts. Within a few years, similar agents were isolated from certain invasive bacteria (Meyer *et al.*, 1936) and their role in increasing the permeability of the interstitial ground substance was clearly established. The biochemical explanation of these observations soon followed with the recognition of hyaluronic acid, an important constituent of ground substance, and the identification of the 'spreading factor' as the depolymerising enzyme, hyaluronidase (Chain and Duthie, 1939).

Since the discovery of hyaluronidase and the recognition of the importance of its substrate in mucopolysaccharides in maintaining cohesion, a number of investigators (Boyland and McClean, 1935; Pirie, 1942; Gluzman, cited by Cameron, 1966) have proposed that this enzyme is liberated by malignant cells and is responsible for their invasive properties.

Whitaker (1960) detected increase of plasma β-glucoronidase in breast cancer patients in comparison to normal control. A year later, Kukhta (1961) observed increase of hyaluronidase activity in the blood serum in leukaemia.

From the above review it is evident that there is some dispute regarding the significance of hyaluronidase in tumour tissue.

The present work has been designed to investigate the significant hyaluronidase activity in normal tissues, inflammatory tissues and compare the same with benign and malignant tumours to assess the progress of their metastasis. Besides, this study may help to detect latent metastasis where there is no clinical evidence of metastasis.

MATERIAL AND METHOD

The present study includes 13 specimens of normal tissue, 8 specimens of inflammatory tissue (tuberculous) and 29 specimens of tumour tissue which include 7 benign tumours and 22 malignant tumours. Benign tumours include 3 specimens of breast tissue, one specimen of ovary and 3 specimens of cervix uteri. The malignant tumours include 7 breast specimens, 5 specimens from penis, 5 specimens from cervix uteri, 2 specimens from lymph node and 3 specimens from ovary.

These specimens were collected from three hospitals in Calcutta, The Chittaranjan Cancer Hospital, R.G. Kar Medical College Hospital and Dock Labour Board Hospital.

The tissues were homogenised according to the method of Kaplan and Colowick (1955).

Turbidimetric method of Kass and Seastone (1944) was followed in estimating the hyaluronidase activity of different tissues. In this method, the optimum concentration of the substrate used (potassium salt of hyaluronic acid) was standardised according to the method of Kaplan and Colowick (*loc. cit.*).

The remaining portions of the tissues were stained with haematoxylin and eosin (Culling, 1957), and histologically examined to identify different tissues

---

* M.B.B.S., D.T M.&H., D.C.P. (Cal.), M.D. (Cal.), nior Medical Officer (Path.), Calcutta Dock Labour Board spital, Calcutta

** M.D., D.T.M. & H., Ph.D., F.A.F.Sc., Reader in Patho-y, University College of Medicine, Calcutta and their pathologic nature. Broders' classification (Anderson, 1971) was followed in classifying epidermoid carcinomas.

OBSERVATIONS

Control—The incidence of enzyme activity in tissue specimen of normal control is shown in Table 1.

TABLE 1—SHOWING ENZYME ACTIVITY IN NORMAL CONTROL

Specimen	No. of specimens	Enzyme activity (IU/g. of tissue)	Mean (IU)	
Breast	3	3.0 to 7.5	5.16	
Endometrium	2	5.0 to 7.0	6.0	
Ovary	2	7.0 to 11.0	9.0	S.D.±3.55 S.E.±0.98
Cervix uteri	4	0 to 2.5	0.625	
Lymph node	2	0 to 1.0	0.5	
Total	13		3.8	

Inflammatory group—In the present study, 8 specimens of inflammatory tissue (tuberculous lesion) of different organs showed increased enzyme activity depending on the tissue affected (Table 2).

TABLE 2—SHOWING ENZYME ACTIVITY IN TUBERCULOUS LESION

Specimen	No. of specimens	Enzyme activity (IU/g. of tissue)	Mean (IU)	
Endometrium	2	10.0 to 20.0	15.0	
Cervix uteri	3	16.0 to 25.0	20.0	S.D.±6.8 S.E.±2.41
Lymph node	3	2.0 to 13.5	8.16	$P<0.01$
Total	8		14.3	

The mean value of activity of enzyme was found to be 14.3 IU per g. of tissue of specimens of tuberculous lesion. When compared to that of normal control, the difference was found to be highly significant. This observation tallies with the works of Bryan (1960), who observed increased enzyme activity in inflammatory conditions.

Benign growth—In contradiction to findings of McCutcheon and Coman (1947) and Podilchak (1952) who failed to detect appreciable enzyme activity in benign tumours, the present series showed appreciable amount of rise in hyaluronidase activity. Out of 7 specimens of benign tumours (Table 3), 3 specimens of cervix uteri showed the highest value of enzyme activity. The mean value of activity of hyaluronidase was 25.6 IU per g. of tissue. The difference appeared highly significant when compared with normal controls and tuberculous lesions.

TABLE 3—SHOWING ENZYME ACTIVITY IN BENIGN GROWTHS

Specimen	No. of specimens	Enzyme activity (IU/g. of tissue)	Mean (IU)	
Breast	3	16.0 to 25.0	19.16	
Ovary	1	22.0	22.0	S.D.±7.28 S.E.±2.75
Cervix uteri	3	32.5 to 35.0	33.33	$P<0.01$
Total	7		25.6	

Malignant growth—In compliance with the observations of Gersh and Catchpole (1949), the enzyme activity of malignant growth in the present series showed increased hyaluronidase activity in clinically metastatic malignant growths (Table 4).

In 22 specimens of malignant neoplastic tissues obtained from 5 different organs, 5 specimens of clinically non-metastatic malignant tumours showed their mean enzyme activity of 34.8 IU per g. of

TABLE 4—SHOWING ENZYME ACTIVITY IN MALIGNANT GROWTHS WITH AND WITHOUT METASTASIS

Specimen	Without metastasis			With metastasis		
	No. of specimens	Enzyme activity (IU/g. of tissue)	Mean (IU)	No. of specimens	Enzyme activity (IU/g. of tissue)	Mea (IU
Breast (adenocarcinoma)	3	31.0 to 35.1	32.7	4	40.0 to 51.0	42.7
Ovary (epidermoid carcinoma metastatic)	Nil	Nil	Nil	3	55.0 to 57.0	56.3
Penis (epidermoid carcinoma)	1	40.0	40.0	4	45.1 to 57.5	53.6
Cervix uteri (epidermoid carcinoma)	1	36.0	36.0	4	45.0 to 64.0	53
Lymph node (adenocarcinoma metastatic)	Nil	Nil	Nil	2	35.1 to 36.0	35.7
Total	5		34.8	17		40
		S.D.±3.2			S.D.±8.85	
				$P<0.01$		
		S.E.±1.45			S.E.±2.14	

tissue whereas 17 specimens of clinically metastatic malignant growth showed their mean enzyme activity of 49.4 IU per g. of tissue. Highest value was observed in 7 out of 8 specimens of epidermoid carcinoma (grade III) of penis and cervix, and also in 2 specimens of adenocarcinoma of lymph node with clinically metastatic lesions. The difference was found to be highly significant when their P value ($P<0.01$) was compared with control group, group with tuberculous lesions (Table 2), group with benign growth (Table 3) as well as with the clinically metastatic and non-metastatic lesions (Table 4). It was also observed that amongst the malignant neoplasms the increase of the hyaluronidase activity was much more in epidermoid carcinomas than that in adenocarcinomas.

DISCUSSION

It is known that in any tissue, the individual cells, the collagen, reticulin, elastic fibres, and the blood and lymph capillaries are firmly embedded in an amorphous viscous gel of ground substance. The ground substance provides mechanical support for its imprisoned cells and being situated between them and the circulation, must be traversed by all external agencies affecting the cell. Thus, the cell's response to external stimuli, whether mechanical, nutritive, metabolic, hormonal, toxic, infective or neoplastic, is conditioned in part by the permeability of its insulating environment of ground substance. Variation in permeability depends upon the degree of viscosity of the amorphous ground substance, a complex mixture of mucopolysaccharides and protein, and upon the relative proportions of amorphous to fibrillary material in intercellular spaces.

The principal mucopolysaccharides, so far dentified, are hyaluronic acid, chondroitin, three varieties of chondroitin sulphate (A,B,C), heparin sulphate and keratosulphate. All these mucopolyaccharides are composed of alternating molecules of uronic acid and amino-sugar residues arranged n the form of long unbranched chain polymers (Blumberg and Ogston, 1958).

A variety of enzymatic histochemical and biochemical studies have been used in an attempt to produce a specific reaction that might differentiate benign from malignant neoplastic process. Although initially, β-glucuronidase and later 6-phosphogluconic acid dehydrogenase appeared as pecific enzymes to level the anaplastic cell, neither as fulfilled expectation. Consequently, different nvestigators (Pirie, *loc. cit.* ; Ozaki, 1952; Biriuova, 1960; Valle Jimenz, cited by Cameron, *loc. cit.*) tried to utilise other enzymatic activities as parameter to differentiate between benign and malignant processes.

Ability to infiltrate surrounding tissues is a basic characteristic of malignant cells. This feature has been extensively studied by many (Coman, 1947; Willis, 1952; Leighton, 1957; Vasilief, 1958; Brennan and Simpson, 1962).

SUMMARY

The present study deals with 50 specimens taken from normal tissue, tuberculous lesions, benign and malignant neoplasms.

Hyaluronidase activity was estimated by the turbidimetric method of Kass and Seastone (*loc. cit*). Amongst 13 normal tissues examined, 4 cases did not show any hyaluronidase activity.

There was significant increased hyaluronidase activity in tuberculous lesions in comparison to normal control (mean value was 14.3 IU per g. of tissue).

This study also indicated the possibility of detection of metastatic cases by estimation of hyaluronidase activity where the level of the enzyme activity was at par with that of clinically metastatic cases of the present series.

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2

Respiratory Efficiency and Grip Strength in Indian Female Gymnasts

A. K. DE*, P. K. DEBNATH**
D. BANERJEE***, D. K. DATTA****
B. M. DAS ADHIKARI*****
S. P. PRAMANICK******
J. NAGCHAUDHURI*******

[**Received for publication September 24, 1980**]

Respiratory efficiency and grip strength tests are considered to be reasonably important among tests of physical efficiency or fitness. These tests are simple, easy as well as quite informative and are conducted with the help of portable instruments. The data on respiratory efficiency tests like vital capacity (VC), peak expiratory flow rate (PEFR) are available in literature for the healthy/non-athlete Indian girls (Bhattacharya and Banerjee, 1966; Jakhanwal and Mohanty, 1967; Bhargava *et al.*, 1973; Malik *et al.*, 1975). Data from a few workers are available for the Indian sportsman (Malhotra *et al.*, 1972; De *et al.*, 1978; De, 1979) and scanty for the female athletes of India (De *et al.*, 1979b). The present study was therefore, undertaken on female gymnasts of our country. The results of this study on gymnasts are compared with those of non-athletes as well as of the athletes taking part in various other sports and games.

MATERIAL AND METHOD

A total number of 23 female gymnasts from various States of India were selected for this study. All of them took part in competitive sports in Women's Sports' Festival, held in Calcutta, in 1979. The height and weight of the subjects were noted without shoes and with minimum clothes. The surface area (SA) was determined following DuBois nomogram

The VC and PEFR were determined with the help of Wrights respirometer and Wrights peak flow meter respectively. The hand dynamometer was used for grip strength determination.

OBSERVATIONS

The results are summarised in Table 1.

TABLE 1—SHOWING PHYSICAL CHARACTERISTICS, VC, PEFR AND GRIP STRENGTH OF FEMALE GYMNASTS

	Range	Mean ± S.D.
Age (years)	9—18	14.70 ± 2.16
Height (cm.)	130—163	148.32 ± 8.68
Weight (kg.)	27—53	37.37 ± 8.22
Surface area (m^2.)	1 00—1.53	1.27 ± 0.16
Vital capacity (litres)	1.000—3.450	2.145 ± 0.655
VC as ml /cm. height	7.19—21.16	14.26 ± 3.85
VC as ml./kg. weight	35.71—67.65	54.01 ± 8.49
VC as ml./m^2. surface area	1000.00—2254.90	1651.47 ± 313.48
Peak expiratory flow rate (l./minute)	190.00—468.00	359.87 ± 75.81
PEFR as l./minute/cm. height	1.46—3.02	2.41 ± 0.43
PEFR as l /minute/kg. weight	6.60—11.00	9.20 ± 1.03
PEFR as l./minute/m^2. surface area	190.00—325.00	280.38 ± 36.60
Grip strength (kg.)		
Right hand	5.00—32.00	18.48 ± 6.68
Left hand	3.00—30.00	17.39 ± 6.12

DISCUSSION

Height and weight–The overall assessment of physical growth is considered with the help of height and weight of an individual. The average height and weight of the subjects of the present investigation were noted to be lower than those of female volley-ball and kabaddi players participated in the same sports festival (De *et al.*, 1979b).

However, the average values of height and weight noted in these gymnasts were observed to be higher than those of non-athlete females from Uttar Pradesh (De and Nagchaudhuri, 1976) and similar to the values reported by Jain and Ramiah (1967) for non-athlete females. Further, the values of the present series were lower than those of well-to-do school girls and comparatively more than the school girls drawn from low income group of families from Andhra Pradesh (Raghavan *et al.*, 1971).

Vital capacity—It was observed that the total volume was similar to those of female volley-ball players

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*******M.B.B.S., Ph. D., Director, Institute of Medical Sciences, Banaras Hindu University, Varanasi and little lower than that noted in Kabaddi players (De *et al.*, 1979a). However, the VC when expressed per unit of height as well as SA, the values were observed to be lower in the present group. Total VC and its various forms of expressions like VC per units of height, weight and SA were noted to be similar for the non-athlete Bengalee girls from better socio-economic status (De *et al.*, 1979a). The reported values of total VC for non-athlete girls of Bengal and Maharashtra were also shown to be similar with the values of present series (Bhattacharya and Banerjee, *loc. cit.*; Kamat *et al.*, 1967). However, VC when expressed per unit of SA for the present group, it was found to be higher than those reported by Bhattacharya and Banerjee (*loc. cit.*).

PEFR—It is a respiratory function test which portrays an overall performance of respiratory efficiency of an individual within a very short time. The results were compared with athlete and non-athlete Indian girls. It was noted that the mean value of total PEFR was similar with the volley-ball and kabaddi players of same sex. Further, the PEFR of the present series was shown to be higher than those of urban Bengalee non-athlete girls drawn from better socio-economic group though the VC was similar in both the groups. PEFR value for the present series was compared with the non-athlete girls. It was found that the gymnasts had higher value than the non-athletes (Malik *et al.*, *loc. cit.*; De *et al.*, 1979a) and the study of Kamat *et al.* (*loc. cit.*) however, showed a similar value.

Grip strength—The values for the present investigation was shown to be similar for volley-ball and kabaddi players as well as for the non-athlete group drawn from higher socio-economic status. The non-availability of norms of grip strength data for average healthy non-athlete Indian girls, it was not possible to compare with the data of the present series.

SUMMARY

The female gymnasts had shown comparatively lower growth rate than those of volley-ball and kabaddi players of same sex. VC for the female volley-ball players as well as for the non-athlete females were similar in the present study. The gymnasts showed little lower value than the kabaddi players. The PEFR values were noted to be similar with volley-ball, kabaddi players and gymnasts and higher than the values reported for the non-athlete females.

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3

The Role of Synovectomy in Rheumatoid Arthritis Knee

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[Received for publication October 27, 1980]

The knee joint has been a testing ground for evaluating the benefits of synovectomy. In the year 1900 synovectomy, both for tuberculosis and rheumatoid arthritis was discussed (Mignon, cited by Wilkinson and Lowry, 1965) and the point was made that the operation was arthrotomy or partial synovectomy, rather than a total synovectomy. In 1929, Allison and Coonse reported that 95% of their patients with non-tuberculous arthritis treated by synovectomy were relieved of pain, the range of movement after operation was about the same as before and average duration of treatment was about 6 months. Swett (1938) advocated synovectomy for non-tuberculous arthritis and later following introduction of antituberculosis drugs, he also recommended it for tuberculous joints. More recently London (1955) advocated synovectomy for treatment of rheumatoid joints and the value of this method of treatment has been reaffirmed by Bastow (1964).

Keeping in view the encouraging results obtained by various authors for synovectomy in rheumatoid

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arthritis, the present study has been contemplated to assess the real value of such procedure in rheumatoid arthritis knee.

MATERIAL AND METHOD

During the period of 7 years from March, 1969 to March, 1976, synovectomies of the knee joint were performed in 30 proved cases of rheumatoid arthritis knee in different age groups of both the sexes in S.M.H.S. Hospital, Srinagar. The diagnosis of rheumatoid arthritis was made with the help of the following: (1) Through interrogation. (2) Complete clinical examination. (3) Laboratory investigations including complete haemogram, ESR Rose-Waaler test and x-ray studies. Twenty synovectomies were done on right knee and 10 on left. Twelve cases had polyarticular involvement along with affection of knee joint and rest of the cases were monoarticular localised to knee joint only.

The synovectomy was done under a tourniquet and through lateral and medial parapatellar incision as suggested by Marmor (1966). All accessible synovial tissue was removed, including the suprapatellar pouch, as much as possible from posterior part of joint. Care was taken not to damage the fine blood vessels supplying the epiphysis. After closure a compression dressing was applied. Active mobilisation was then encouraged.

According to findings at operation the knee joints were graded into 3 groups: Group I—Presence of synovitis only with clear articular cartilage (12 cases), group II—Formation of pannus and its extension over the articular cartilage without erosions (12 cases), and group III—Presence of erosions (6 cases).

Effusion, pain and movement of the knee joint were recorded before and after operation during the follow-up period. After the synovectomy it took several months up to a year for the knee to reach its optimum condition. Ten knees required manipulation under general anaesthesia, which was performed in the 4th postoperative week. In 5 cases where movement seemed to be more restricted, an intra-articular injection of 20 mg. hydrocortisone and a local anaesthetic (8 ml. of 1% lignocaine hydrochloride) were given at the time of manipulation. ESR was recorded in all the cases before and after synovectomy. The period of follow-up of the operated cases varied from 4 to 10 years with an average of 7 years.

For assessment of clinical results the following criteria based on subjective and objective improvement in relation to effusion, pain and movement were used: (1) Good—No effusion, no pain and increase of more than 10 degrees in a previously restricted range of flexion and full extension or preservation of a normal range of movement; (2) Fair—Effusion less, pain not severe and no loss of movement; (3) Poor—Effusion remained the same as item No. 2 or worse, pain remained the same as item No.2 and range of movement reduced by more than 10 degrees.

OBSERVATIONS

The age and sex distributions are shown in Table 1.

TABLE 1—SHOWING AGE AND SEX DISTRIBUTIONS

Sex	Age group in years			
	10—20	21—30	31—40	41—50
Male	1	4	5	1
Female	4	12	2	1
Total	5	16	7	2

The results of synovectomies in different groups of rheumatoid arthritis knee are shown in Table 2.

TABLE 2—SHOWING RESULTS OF SYNOVECTOMIES DONE ON KNEE JOINTS AFFECTED BY RHEUMATOID ARTHRITIS

Group	No. of cases	Degree of improvement		
		Good	Fair	Poor
I	12	9 (75%)	3 (25%)	—
II	12	8 (66.6%)	4 (33.3%)	—
III	6	2 (33.3%)	3 (50%)	1(16.6%)
Total	30	19	10	1

The ESR was decreased in all the 30 cases of synovectomy to a remarkable extent. The range of decreased ESR was 6 to 24 mm. in the 1st hour with a mean of 16 mm.

DISCUSSION

London (*loc. cit.*) reported the results of synovectomy in 34 knees in which rheumatoid arthritis was suspected. A diagnosis of rheumatoid arthritis was definitely established in 28 cases. His reported results were good, both subjective and objective improvements were obtained practically in all cases, but he stressed the importance of selection of cases of rheumatoid arthritis for synovectomy.

Eyring *et al.* (1971) reported a series of synovectomies, which included 10 of the knee, followed up for an average of 2 years after operation. The results were generally favourable.

Synovectomy is a useful procedure which should be reserved for cases where effusion persists despite 9 months of conservative treatment and performed before signs of bone erosion appear (McMaster, 1972).

The results of synovectomy in rheumatoid arthritis knee in all the 3 groups of the present series proved quite encouraging. In group I, 75% showed good results and 25% fair. In group II, 66.6% showed good results and 33.3% fair. In group III, 33.3% showed good, 50% fair and 16.6% showed poor results. The results of synovectomy in rheumatoid arthritis knee in the present series thus showed good results, especially if the synovectomy is carried out in the early phase of the disease before erosive changes have taken place in the articular cartilages as reported by London (*loc. cit.*).

Following synovectomy for rheumatoid arthritis, new synovial tissue is formed capable of dialysis of synovial fluid. To some extent the nutrition of cartilage is restored and removal of necrosed tissue favours revascularisation. That the benefits are not merely symptomatic is seen not only from return to near normal function of many joints but also from the improved radiological appearance which is sometimes seen (Wilkinson and Lowry, *loc. cit.*).

The value of synovectomy seems to be related to several factors, the first is removal of target tissue, thereby improving the course of disease process, removal of synovium also reduces effusion in the joint and stretching of peri-articular tissue, thus allowing ligaments to remain tight. Joint destruction is also decreased by removal of synovium because of pannus formation, the cause of articular cartilage destruction is reduced.

SUMMARY

Thirty cases of synovectomies of knee joint for rheumatoid arthritis during the period of 7 years from March, 1969 to March, 1976 with complete postoperative follow-up period which varied from 4-10 years, were studied to assess the value of synovectomy in rheumatoid arthritis knee. The results of synovectomy in the early phase of the disease proved very good and even in the late phase showed fair results.

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4

Midtrimester Pregnancy Termination by Extra-ovular Rubber Catheter in Complicated Cases

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[Received for publication January 16, 1981]

In recent years, many techniques have been evolved for termination of midtrimester pregnancy. But the search is still on for the safe, efficacious and economical method of termination in midtrimester. Intra-amniotic saline, urea, prostaglandins, ethacridine lactate are widely practised. Nevertheless all these procedures are not free from complications. Moreover, there is additional risk of amniocentesis. Coagulopathies might develop due to intra-amniotic injection of hypertonic saline and urea (Burkman *et al.*, 1977). Uterine injuries following intra-amniotic injection of urea (Parmley *et al.*, 1976) and prostaglandin F_2 alpha (Propping *et al.*, 1977) have also been reported.

Many a times there are confrontation about the problems of termination in complicated cases. Medical disorder complicating pregnancy is an additional risk to the midtrimester termination.

The purpose of the present investigation was to evaluate the efficacy of the simplest mechanical method namely, extra-amniotic rubber catheter without using any drug in complicated cases.

MATERIAL AND METHOD

This work was carried out in the Department of Obstetrics and Gynaecology, Patna Medical College, Patna during the period of August, 1978 to March, 1980. The pregnancy was terminated in midtrimester in 50 cases. These cases had various complications (Table 1). In addition to the routine investigations and treatment for the medical disorders, high vaginal and cervical swabs were also taken for culture and sensitivity test. The infection was treated simultaneously with appropriate antibiotics. Tetanus toxoid was given as a routine to these patients. No sedation or anaesthesia was required for this procedure. With all aseptic and antiseptic measures after properly disinfecting

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TABLE I—SHOWING THE TYPE OF COMPLICATIONS

Nature of complication	No. of cases
Rheumatic heart disease	16 (32%)
Hypertension	6 (12%)
Eclampsia	4 (8%)
Chronic nephritis	2 (4%)
Jaundice	6 (12%)
Diabetes with pregnancy	4 (8%)
Hepatomegaly, splenomegaly and ascites	2 (4%)
Epileptic fits	5 (10%)
Psychiatric disorder	4 (8%)
Pleural effusion	1 (2%)
Total	50

the vagina, No. 9 autoclaved rubber catheter was introduced through the cervical canal in the extra-amniotic space. In parous women even 2 or 3 catheters had been used. The catheter was pushed high-up past the internal os and no part of the catheter was allowed to hang. If the resistance was met in introducing the catheter and bleeding occurred, the catheter was immediately taken out and reintroduced selecting a different site and a resistance free area to avoid piercing or detachment of placenta or rupture of the membranes.

Radiological examination of abdomen and pelvis was done 10 minutes after introduction of catheter in all the cases. The abortion process was enhanced by oxytocin drip if there was delay in induction-abortion interval.

After completion of abortion the post-abortal period was carefully observed for any complication.

OBSERVATIONS

Age and income group—The age of the patients varied between 15-42 years, and most of the patients belonged to low income group, only 5% belonged to above average income group.

Period of gestation—The period of gestation varied between 14-22 weeks.

Gravidity—Out of 50 cases, 20 cases (40%) were primigravida, 8 cases (16%) were 2nd gravida, 6 (12%) were 3rd gravida, 8 (16%) were 4th gravida and rest 8 cases (16%) were 5th gravida or above.

Induction-abortion interval—Table 2 presents induction-abortion interval in relation to period of gestation. It is apparent from Table 2 that 80% aborted within 36 hours and there is no definite correlation between period of gestation and induction-abortion interval.

TABLE 2—SHOWING INDUCTION-ABORTION INTERVAL IN RELATION TO PERIOD OF GESTATION

Induction-abortion interval (hours)	No. of cases	Duration of pregnancy in weeks	
		14–17	18–22
Within 24	30 (60%)	15	15
>24–36	10 (20%)	—	10
>36–48	8 (16%)	4	4
>48–60	1 (20%)	1	—
>60–72	1 (2%)	—	1
Total	50	20	30

Table 3 shows the relation of disposition of catheter in extra-amniotic space and induction-abortion interval. Twenty out of 24 cases with coiling of catheter at the level of fundus aborted within 24 hours and the rest 4 cases in the period of more than 24 to 36 hours.

TABLE 3—SHOWING INDUCTION-ABORTION INTERVAL IN RELATION TO DISPOSITION OF CATHETER IN EXTRA-AMNIOTIC SPACE IN UTERINE CAVITY ON RADIOLOGICAL EXAMINATION

		Induction-abortion interval in hours				
Disposition of catheter	No. patients	Within 24	>24-36	>36-48	>48-60	>60-72
Fundal coiling	24	20	4	—	—	—
Coiling lower down	16	8	4	4	1	—
Coiling with double catheter	10	2	2	4	-	1
Total	50	30	10	8	1	1

DISCUSSION

Termination of pregnancy complicated by medical disorders is the crux of the problem. Drugs have to be used cautiously keeping in view the complication which may not adversely affect the disease. Hypertonic saline, urea, prostaglandins and ethacridine lactate should not be used in such cases because of the contra-indication. Extra-ovular placement of rubber catheter was the only safest method

After the introduction of catheter the patients had negligible discomfort. During introduction bleeding occurred in 10% of the cases. The catheter was taken out and was reintroduced without any complication. In spite of precaution, membranes got ruptured in 60% of the cases during introduction of catheter. Delay in induction-abortion interval occurred in these cases Chances of infection could be minimised by suitable antibiotic.

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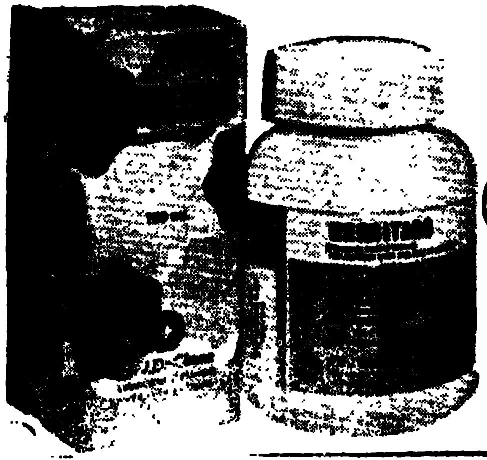

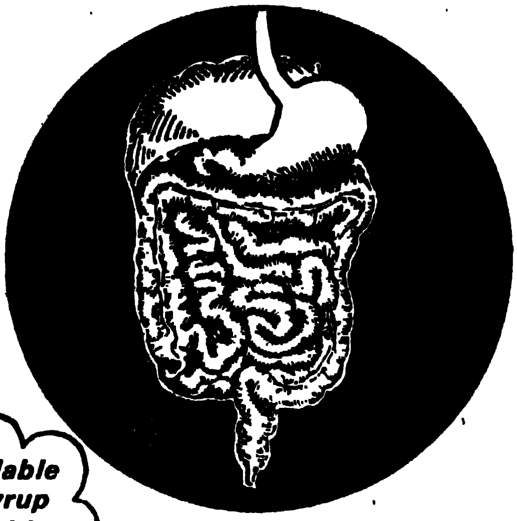

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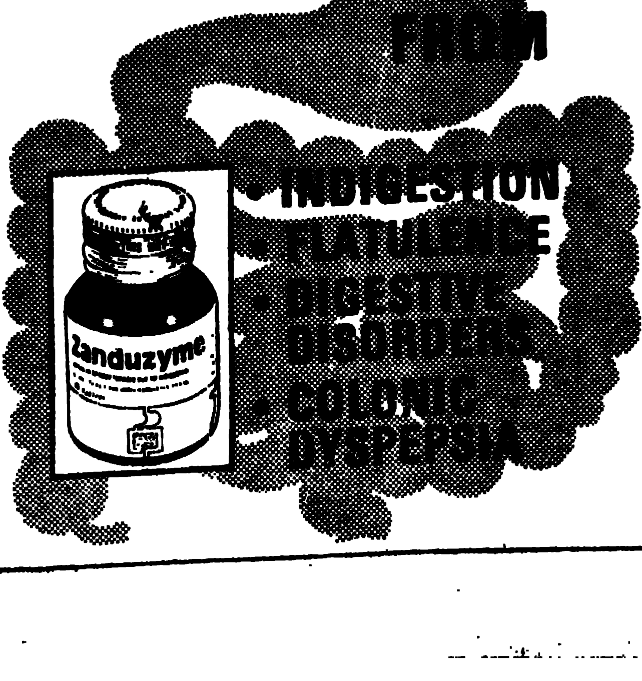

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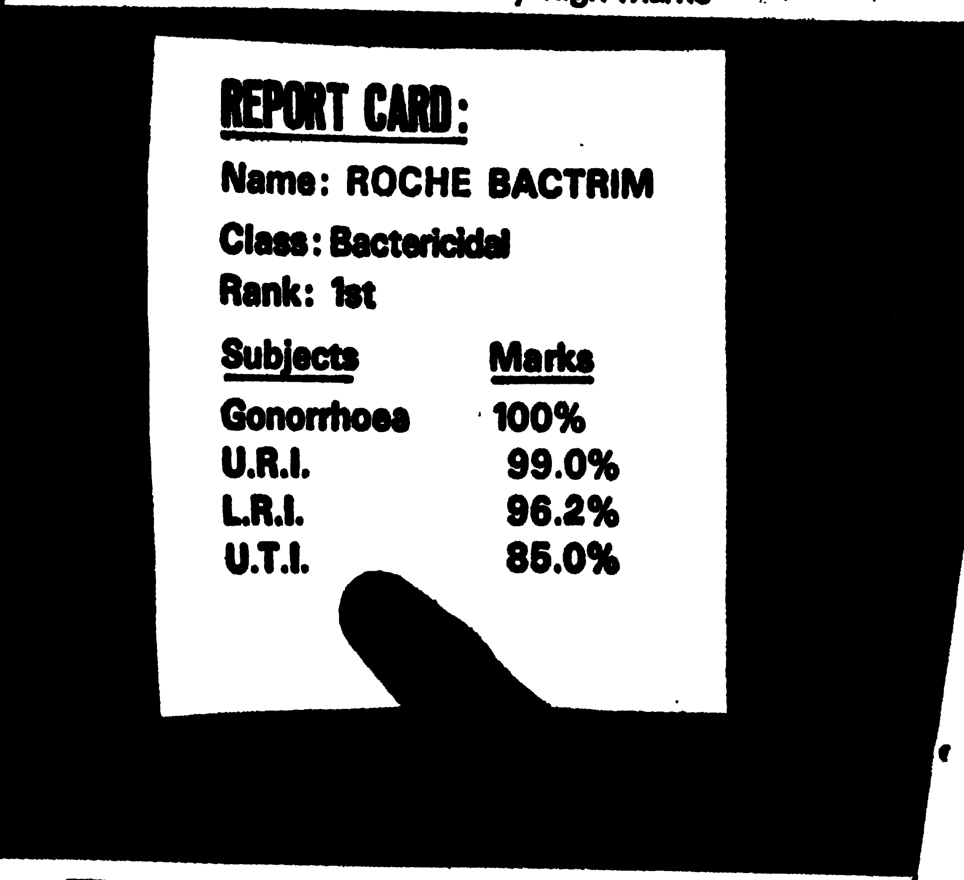

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The mode of action of a catheter is mechanical irritation and the contractions simulated labour pain The myogenic nature of uterine contraction has also been reported by Manabe (1967). It is also presumed that the catheter partly separated the membranes which augmented the abortion process.

The patients with rheumatic heart disease aborted easily within 24 hours and without much discomfort. Four out of 5 epileptic patients had attack of fits soon after the completion of introduction of catheter. The radiological examination revealed that the catheter which were pushed up to the fundus of the uterus and coiling occurred at fundus led to more efficient uterine contractions and 20 out of 24 cases aborted within 24 hours.

Uterine contractions were accelerated with the help of oxytocin drip in 12% of the cases after 36 hours of introduction of catheter. The abortion was complete in 40 cases out of 50 cases within 36 hours who had male foetuses. Bleeding was within normal limits. Post-abortal period was apyrexial and vaginal discharge was normal.

The only draw back was that the catheter dropped down during defaecation in 12% of the cases. Reintroduction was done without increase in infection rate and with successful results. Unpredictability regarding induction-abortion interval was another drawback.

Just like bougie, extra-ovular catheter has been advocated by George (1978) for midtrimester abortion. Prolonged abortion time being a major concern by catheters, a combined method of catheter and prostaglandins was advocated by Rajan and Usha (1979). Garud (1979) has used extra-ovular catheter for termination of midtrimester pregnancy with success. According to Tandon *et al.* (1979) success rate with extra-ovular catheter was 100% in midtrimester abortion. Bleeding, pyrexia and retained placenta occurred in a few cases.

SUMMARY AND CONCLUSION

Midtrimester pregnancy was terminated in 50 cases complicated with various medical disorders by introducing autoclaved rubber catheter in extra-amniotic space. Forty cases (80%) aborted within 36 hours. In 12% cases after 36 hours, oxytocin drip was used to accelerate the uterine contraction. Coiling of catheter at the level of fundus led to more efficient contraction and 20 out of 24 cases with this aborted within 24 hours.

By and large extra-amniotic rubber catheter is the safest, simplest, most economical and effective method of termination of pregnancy particularly in medical disorders complicating pregnancy.

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1

Recurrent Acinic Cell Tumours of Parotid Gland

J. C. SHAH*, P. M. TRIVEDI**

Acinic cell tumours of the parotid are not common. They are often found to be malignant and are liable to recur after excision. Eight cases of this tumour were studied of which two cases had recurrence after simple excision and one had recurrence for 5 times after multiple wide excisions including radical parotidectomy and dissection in the neck, are reported.

CASE REPORTS

CASE 1 :

A female patient, 50 years, came with right parotid swelling, gradually increasing in size, painless, firm and free from skin and deeper structures. There was no lymph node enlargement.

Surgery—She was operated on and a well capsulated tumour was found arising from deep lobe of the parotid gland. It was enucleated, preserving the parotid gland and the facial nerve.

Histology—On microscopic examination, it showed structure of an acinic cell tumour.

Course—After 3 years, the patient came with local recurrence. A hard, fixed tumour was found with ulceration of re-

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gional lymph nodes. The patient was operated again. Total radical parotidectomy with radical neck dissection was done. Postoperative adjuvant radiotherapy was given. The patient did not have recurrence for 2 years and then she was lost to follow-up.

CASE 2 :

A male patient, 45 years, came with a soft swelling over right parotid region of short duration which was painless, free from skin and deeper structures and there was no facial palsy. It was 5 cm. ×4 cm. in size. It was excised in 1973. The patient had an uneventful postoperative period. Histopathology showed an acinic cell tumour.

After 3 years, he came with a recurrence. There were 4 round swellings on the parotid region for 8 months with pain, ulceration and facial paralysis. Tumours were 1 to 3 cm. in size, firm, non-tender and free from masseter. There were palpable upper cervical lymph nodes on that side which were small, multiple, firm, discrete and mobile.

Surgery—Total radical parotidectomy with radical neck dissection was done. Postoperative period was smooth.

Histopathology—Histopathology showed evidence of acinic cell tumour with metastases in the lymph nodes (Fig. 1,H. & E. x 100).

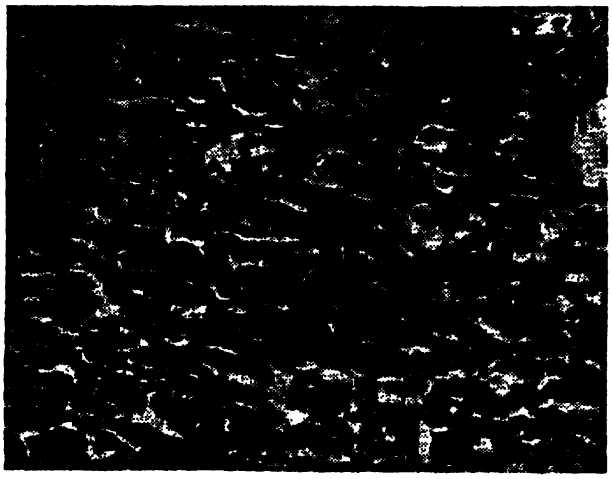

FIG. 1—SHOWING ACINIC CELL TUMOUR IN MICROPHOTOGRAPH

Follow-up—Radiotherapy was given by telecobalt up to a total of 4,500 rad. After 2 years, the patient was called for follow up. He showed 4 small nodules over the right mandible, free from skin and deeper structures. No lymph nodes were enlarged. Chest x-ray was normal. The patient refused operative treatment for social reasons.

After 6 months, in November, 1978, the patient had fixity of the recurrent tumours to the mandible. Right hemimandibulectomy was performed.

Eight months later, the patient had recurrent tumours in right upper neck and they were multiple, small, discrete, firm, mobile and non-tender. Each one was excised. After 2 months, the patient had a right supraclavicular mass, which was excised. The patient was put on injectio 5 fluorouracil-250 mg. in a running intravenous drip daily for 5 days a week for 3 weeks. The patient developed recurrence after 9 months in June, 1980. The patient is still alive after 7 years and has local recurrences with metastases in the lung (Fig. 2) and chest wall and some loss of weight but has a good general condition.

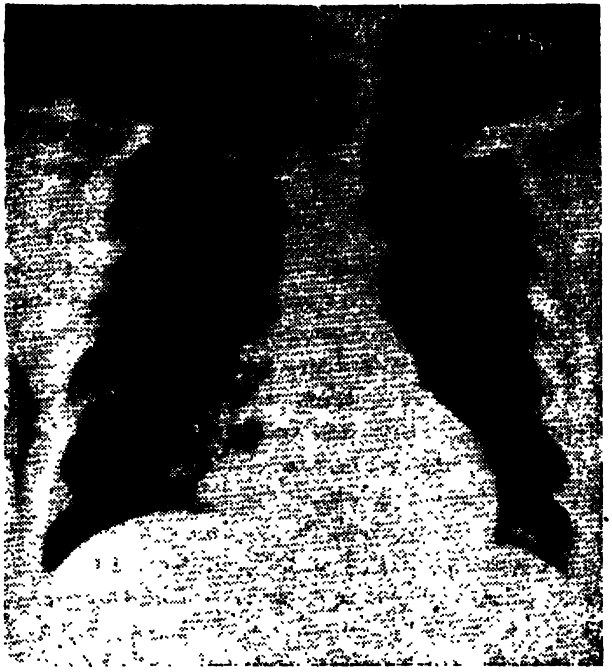

FIG. 2—SHOWING PULMONARY METASTASES FROM AN ACINIC CELL TUMOUR AFTER FIVE MULTIPLE WIDE EXCISIONS

Investigations before chemotherapy: Haemoglobin—10.5g%, WBC—9400/c.mm.with polymorphs—62%,lymphocytes—34%, eosinophils—2%, monocytes—2%. ESR-35 mm. 1st hour (Westergren). Results of stool and urine examinations were within normal limits.

After completion of chemotherapy: Haemoglobin.—8.5 g%, WBC—3800/c.mm. with polymorphs—55%,lymphocytes—40%, eosinophils—2% and monocytes—3%.

DISCUSSION

Acinic cell tumours of parotid gland are very rare neoplasms. Foote and Frazell (1953) reported 21 cases out of 766 parotid tumours and Beahrs *et al.* (1960) found 24 cases (3.4%) out of 712 parotid tumours. There were 8 acinic cell tumours out of 149 parotid tumours(5.4%), studied at S.S.G. Hospital, Baroda. The early literature on isolated case reports of these tumours was reviewed by Godwin *et al.* (1954) who collected 27 cases. In almost all cases, the tumour was classified as a benign adenoma due to its benign looking histological appearance. After the study of Foote and Frazell (*loc. cit.*), it became apparent that acinic cell tumours are malignant, as out of 21 cases of the study 16 tumours were either recurrent or recurred after excision, 3 of them even died of the tumour. Beahrs *et al.*(*loc.cit.*) reported 55.6% recurrence rate at 5 years. Grage *et al.* (1961) reported 3 deaths due to this tumour out of 11 cases and also encountered metastases in spine from acinic cell tumour of parotid gland.

Acinic cell tumours, though clinically look benign at first presentation, are likely to recur after simple excisions. The recurrent tumours become more invasive and repeated radical excisions may fail to cure the patient. Hence, they should never be primarily treated by local excisions. Minimum treatment for a benign looking parotid tumour is superficial parotidectomy in superficial tumours and total conservative parotidectomy in deep seated tumours. However, once a recurrence is found, it should be very widely excised. Aggressive treatment can prolong the life to a marked extent.

SUMMARY

Eight cases of acinic cell tumours of parotid gland were studied, out of which 2 had recurrence. Details of the 2 recurrent tumours are presented. One tumour had recurred 5 times after repeated wide excisions. Literature on these tumours is reviewed and their malignant nature is emphasised.

ACKNOWLEDGMENT

We sincerely thanks the Dean, Medical College, Baroda and Superintendent, S. S. G. Hospital, Baroda, for allowing us to use the records.

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2

Thoracic Intervertebral Disc Prolapse

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Protrusion of thoracic intervertebral disc is a rare condition. In 1911 Middleton and Teacher (cited by Arseni and Nash, 1960) described a large herniated intervertebral disc in the autopsy at T_{12} in a case of traumatic paraplegia. In 1931, Antoni (cited by Arseni and Nash, *loc. cit.*) reported the first clinical case. Comparing the various series of herniated discs at all levels of the spine operated, Mayo Clinic reported 2% to 3% incidence of thoracic intervertebral disc prolapse and Toscan Institute of Orthopaedics (cited by Northfield, 1974) reported 1%, thereby demonstrating its rarity. Out of 222 operated cases of disc prolapse at various levels in the Department of Neurosurgery at Madurai, only one was found to be herniation of the disc at thoracic level. Rao and Dinakar (1970) reported a case of thoracic intervertebral disc prolapse with 5-year follow-up.

CASE REPORT

Mr. C., a male aged 23 years was admitted with weakness in both lower limbs of gradual onset of one month duration. The weakness started insidiously with paraesthesia in both feet and progressed to incapacitate him to get up from squating position. He could walk with support. There was no history of trauma or backache earlier. Personal and family history were not contributory.

Examination—On examination the patient had grade IV power in both the lower limbs in all groups of muscles. Tone was increased in the extensor group of muscles. Both knee and ankle jerks were exaggerated. Plantar reflex was extensor on both sides. There was minimal impairment of mild touch and pain sensations below L_2 segment on both sides. There was no spinal tenderness nor paraspinal muscle spasm. A provisional diagnosis of cord compression at T_{11} spine was made.

Investigations—Blood VDRL and CSF VDRL were non-reactive. Skiagram of thoracolumbar spines was normal. Quickenstedt's test revealed no subarachnoid block. CSF showed high protein content. Myelogram showed a partial constriction of dye column opposite to the disc space between T_{11} and T_{12} vertebrae with a smooth indentation on the left side pushing the dye column to the right side.

Management—Because of the partial block and increasing neurological deficit as evidenced by the increasing weakness during his hospital stay, it was decided to explore the area of partial block.

Under general anaesthesia, patient in prone position, laminectomy was done from T_{11} to L_1 spines. Dura was exposed. Full exploration of the extradural space was not possible since the dura was firmly adherent anteriorly. Gentle palpation of the suspected region of block gave a feel of something firm anteriorly, hence the dura was opened and no convincing pathological lesion could be made posterior to the cord. The cord was gently retracted and a uniform wedge like projection of the disc between T_{11} and T_{12} was found. The bulge was more on the left side making indentation on the cord. It was decided not to cut or remove the disc to prevent damage to the cord on retraction. Satisfied with having done adequate posterior decompression of the cord, the wound was closed in layers after securing haemostasis.

During immediate postoperative period patient had deterioration of motor power in the lower limbs to grade O on the right side and grade I on the left side. He subsequently improved and regained grade IV power in both the lower limbs with full sensory recovery and he could walk without support.

DISCUSSION

In the present case the patient gave no history of trauma to the back though Northfield (*loc. cit.*) states that trauma plays a role in aetiology perhaps in a quarter of the cases. He neither had spinal nor radicular pain. In a clinical study (Arseni and Nash, *loc. cit.*) spinal pain was noted in 75% of cases. CSF examination revealed no evidence of subarachnoid obstruction since the block was only partial. Radiological examination did not show any narrowing of intervertebral space. But the presenting feature of the blotches of dye column in myelography was more in favour of extradural granulation tissue which is a common pathology found in this institution. However, it did not confirm the nature of pathology. Retrospective study revealed constriction of dye column opposite to the disc space. Difficulties of identifying the filling defects in the thoracic portion of the spinal cord was well brought out by Lambardi and Passerini (1964). The actual pathology could be confirmed only during surgery.

The aim of operation was only to facilitate decompression of the cord since the removal of thoracic disc as a procedure has a lot of technical difficulties, such as (1) small size of the

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spinal canal in this region, (ii) anterior situation of hard mass which easily gets embedded itself in the cord and (iii) the chances of jeopardising the viability of the spinal cord by bruising on retraction.

SUMMARY

A rare case of thoracic intervertebral disc prolapse who came as a case of cord compression is presented. The absence of trauma and local pain need not always be the presenting feature in thoracic disc protrusion and confirmation could be made only by surgery. Management was aimed at to provide adequate decompression without any attempt at the removal of the disc.

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3

Simultaneous Occurrence of Herpes Zoster and Varicella

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Though herpes zoster and varicella present with different clinical manifestations and age distribution, Von Bokay (1909) was first to claim on clinical ground that both were caused apparently by the same agent. Further clinical, epidemiological and viral culture studies have supported this view (Weller *et al.*, 1958). Thus the causative agents of these two diseases have been shown to be indistinguishable morphologically, antigenically and biologically (Taylor-Robinson, 1960; Gold, 1966).

Simultaneous occurrence of herpes zoster and varicella is uncommon in a patient. The review of literature shows few reports up-till now. One such case is being reported here.

CASE REPORT

R.J., a 42-year-old Hindu male was admitted to Irwin Group of Hospitals, Jamnagar on 15-4-1977 for an attack of herpes zoster involving sensory distribution of T_{11} on the left side. The skin manifestations were preceded by malaise, intermittent moderate fever and neuralgic pain over and around the site of skin eruptions. There was no history of previous contact with varicella and herpes zoster and had no history of similar illness in the childhood. There was history of chronic cough and mild fever off and on for one year. He had an attack of haemoptysis 2 months back. Following that he was investigated by a private practitioner and was treated with antituberculosis drugs.

Examination—On examination he looked ill. Temperature was 100°F. Pulse rate was 96/minute and regular. BP was 120/86 mm. Hg. There were vesiculobullous eruptions over the distributions of T_{11} segment on the left side (Fig. 1). Few cervical lymph nodes were enlarged. Systemic examination did not reveal any abnormality.

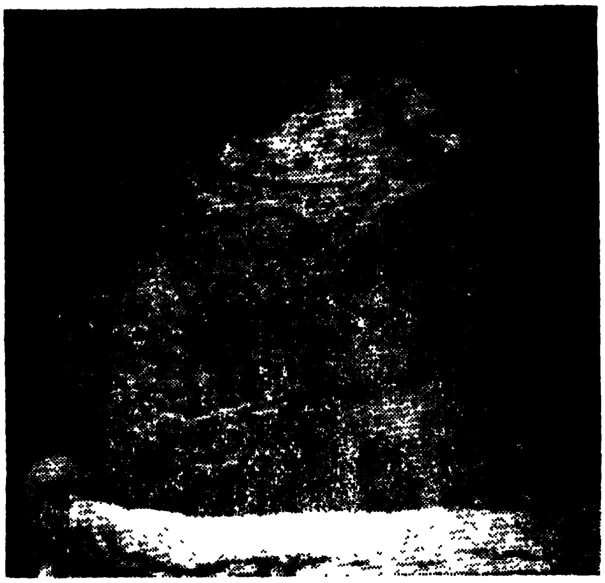

FIG. 1—SHOWING VESICULOBULLOUS ERUPTIONS OVER THE DISTRIBUTION OF T_{11} SEGMENT ON THE LEFT SIDE

Investigations—Haemoglobin was 11.2g.%. Urine analysis, total and differential blood count were normal. Fundus did not reveal any abnormality. X-ray chest showed evidence of pulmonary tuberculosis in both upper zones. Sputum was negative for acid-fast bacilli. Serological tests for syphilis were negative. Culture for varicella-zoster viruses, fluorescent antibody and neutralisation tests could not be carried out because of lack of facilities.

Management—The patient was treated with acetyl salicylic acid, pheniramine maleate tablets and local application of lotio calamine over the herpetic eruptions. Antituberculosis treatment was continued.

Course—Two days later, while he was still febrile, the patient developed generalised scattered macular eruptions, turned into papules and vesicles all over, giving the appearance of true varicella. All the stages of papules, vesicles, pustules and crusts were seen at different places suggestive of pleomorphic character of varicella. The patient became afebrile on 8th day of admission and varicelliform rash cleared in 2 weeks time. Herpetic lesions have not disappeared completely at the time of discharge from the hospital. The patient was advised to continue antituberculosis treatment at the time of discharge.

DISCUSSION

Aetiological agent of herpes zoster and varicella is one and the same but simultaneous occurrence of these two is rare. Only a few cases have been reported by Farman (cited by Almyeda, 1942), Campbell (cited by Almyeda, *loc. cit.*) and Almyeda (*loc. cit.*). All the 3 cases reported by Almyeda (*loc. cit.*) had varicelliform eruptions followed by unilateral herpetic attacks within 5 days. A case reported by Vassa *et al.* (1973)

(*Continued on page 35*)

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Chemotherapy of Cancer—Its Past, Present and Future

Chemotherapeutic management of cancer is known for a long time. In Atharva Veda (2200 BC) there is only mention of *apachit* referring to lymphadenopathy, probably of varying aetiology. Only hymns and charms were the methods of treatment advocated. A few herbs were used as accessory methods of treatment[1]. In Charaka Samhita (8th century BC) cancer (*arbuda*) was considered under swellings and herbal medicines were used in treating the same. Sushruta (6th century BC) gave a more detailed description of tumours and described surgical treatment and medical treatment with herbs.

Nagarjuna (6th century AD) brought forward improved methods of treatment of cancer by use of chemicals (*bhasmas* of heavy metals). These facts were summarised by Vagbata[2] in 4th century AD. Chatterjee[3] summarised the various methods of Ayurvedic treatment employed in cancer. Kulkarni Jinralkar[4] has also published his experiences of treating cancer in Kannada language. Recently, ICMR has taken up the subject for further study and development.

The modern phase of chemotherapy of cancer appeared wth the introduction of polyfunctional alkylating agents in early 1940's. Gilman and Philips[5] treated a patient of lymphosarcoma with nitrogen mustard. Chemotherapy of malignant diseases, based on experimental counterpart, originated with the introduction of diethylstilboestrol for the treatment of prostatic carcinoma[6]. Children with leukaemia were treated with antimetabolites[7].

The armamentarium of cancer chemotherapists or that of the medical oncologists has grown dramatically in the last three decades[8]. In the last 10 years alone, the US National Cancer Institute has screened 250,000 substances for potential anticancer activity and near about 500,000 drugs have been examined in the world in an effort to find more effective anticancer drugs, like vinka-alkaloids, bleomycin, daunorubicin hydrochloride, adriamycin (doxorubicin), cisplatinum (DDP: Cis-di-chlora-diamine platinum), etc.

Cancer chemotherapy is, at present, in a rapidly growing and slightly indisciplined adolescent stage. Its growth is not uniform. In some areas, the therapeutic strategies and optimal drug combinations are uniform and in others the treatment modalities that can make significant impact on malignant diseases are still under investigation. During past five years, the growth and development of this medical oncology have been impressive.

Along with the development of cancer chemotherapy, the clinical trials of anticancer drugs have become more complex simultaneously. Before application of chemotherapeutic drugs to cancer patients, selection of subjects is of prime importance. All these drugs have side-effects in addition to antineoplastic effect. A dream of cancer research has been to find out a specific drug with minimum toxicities and such drugs which can completely eradicate carcinoma have not yet been discovered till date.

In early days of cancer chemotherapy, a single agent with low dose was the usual practice. This low dose single drug therapy has been abandoned in many centres probably due to development of drug resistance. Intermittent high dose chemotherapy[9] forms the basis of most modern chemotherapy regime. This is an application of fractional cell kill principle[10]. The rate of response is high with prolonged duration of remission. But one should become cautious about the development of irreversible toxicity damage to bone marrow, liver and kidney as the limiting factors.

Combination chemotherapy utilising different drugs, is another advancement. Many effective combinations have been evolved lately to render long time palliation and survival possible in many cases. Chemotherapy, combined with surgery or radiotherapy, i.e., adjuvant chemotherapy, is a further development in treatment of cases with solid tumours. The concept of total therapy in paediatric solid tumours, e.g., Wilm's tumour, and its impact on long term results is encouraging.

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Hertz *et al.*[11] reported the results of combination chemotherapy with methotrexate and actinomycin D on trophoblastic tumours. Remission rates were 74% in metastatic and 93% for non-metastatic trophoblastic diseases. Judicious use of drugs with adjuvant surgery and occasionally radiotherapy gave maximum chance of recovery. In majority of cases, a normal reproductive career was detected.

It has been a constant dream of the medical oncologist to devise a method by which prediction of results can be made so that empericism involved in chemotherapy would be greatly minimised. Discovery of a new field of oestrogen receptor (ER) analysis and its application to prediction of therapeutic response in breast cancer is a recent development. A high degree of correlation between treatment failures with hormones and ER negative cases has been reported[12]. It has also been hypothesised[12,13] that progesterone receptor assay is important from the standpoint of determination of endocrine responsiveness. It is likely that 40% of ER positive tumours that are endocrine resistant may be identified more clearly.

Different protocols have been advocated for treating patients wth malignancies of diverse nature e.g., non-Hodgkin's lymphoma and Hodgkin's lymphoma, leukaemia, etc. Sometimes, implementation of these protocols are very costly. The cost-benefit ratio is high. In a developing country like ours, we need protocols which are suitable for our patients.

The concept of micrometastasis of solid tumours, even in early stages, is important. It stimulates the chemotherapists to think about the prophylactic use of chemotherapy in the control of solid tumours. There are very few centres, if any, in the world, where prophylactic chemotherapy for stage I solid tumours is being practised. Prophylactic and adjunctive use of chemotherapy appears to be most promising. Extensive trial throughout the world, including our country, in a unified manner is needed.

Modern chemotherapy of cancer is the product of molecular approach to cancer which entails a thorough and requisite knowledge of tumour biology, cell, kinetics, pharmacognosy, pharmacokinetics, biochemistry, immunology and toxicology[14]. Medical oncologists should be well acquainted with these information. He must enquire about the pre-treatment conditions of the patient. He should always keep in mind the cautionary remark that "before you are useful, be sure you are harmless".

Various newer developments have occupied the fields of cancer chemotherapy. The role of lysosomal system in the transport of lysosomototropic cytostatic drugs are being studied. An effective lysosomototropic form of adriamycin with DNA has been designed. The complex is more effective than the free drug. In resistant cases of leukaemia, adriamycin DNA complex is more effective than adriamycin alone. Very encouraging results have been obtained by adriamycin DNA complex in the treatment of leukaemia, lymphosarcoma and childhood solid tumours.

Some more interesting observations have been reported with respect to development of second tumour. During the course of chemotherapy with chlorambucil in patients suffering from chronic lymphatic leukaemia, some of the patients developed cancer prostate. Development of second tumours may point to carcinogenic potentiality of anticancer drugs.

A high dose of methotrexate with citrovorum factor is a new approach to cancer chemotherapy[15]. Control of infection is a vital step for further progress in cancer chemotherapy.

Perhaps, we are entering the new era of cure for cancer. The new era is marked by increasing role of chemotherapy with or without immunotherapy. Immunotherapy represents an exciting milestone.

Very recently, immunotherapy has been combined with chemotherapy. The latest concept of immunochemotherapy with drugs conjugated with antibodies[16] is a remarkable development. Chemotherapeutic drugs are carried by conjugated antibodies to the target cells to result in selective tumour cell kill, wthout affecting normal growing tissue of the body.

There is a view that chemotherapeutic agents act by inducing a temporary immunopotentiation by reversing the immune tolerance to a tumour[17].

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Although this argument is hypothetical in nature there is sufficient experimental and clinical evidence to prove the veracity of this claim. It is a common knowledge that relative energy or depressed cell-mediated immunity is a regular feature in a malignant disease. The role of blocking antibodies, in inhibiting the host's immune response is well-known today and a possible influence of chemotherapy may be the inhibition of these blocking antibodies[18]. During the course of treatment with potent immunosuppressive drugs, patients with acute leukaemia pass from a phase of relative immuno-incompetence to immunocompetence, as evidenced by various *in vitro* and *in vivo* tests. Again, when patients undergo intensive and intermittent chemotherapy, they often present with immunological rebound during the drug-free interval[19].

In India, non-availability of drugs, appalingly low socio-economic condition of a very large number of people and its high cost keep the anticancer drugs beyond the reach of the suffering multitude, even when they are available in the market. There is again a yawning gap in between the number of cancer patients and availability of hospital facilities and of trained personnel, resulting in a huge waste and misuse of drugs.

Chemotherapy of cancer has bright future. Life expectancy of patients with acute lymphoblastic leukaemia was less than five months before early 1950's. By judicious treatment with combination of methotrexate and 6-mercaptopurine monohydrate. survival period was extended by more than one year[19]. At present life expectancy is in excess of four years.

An attempt to time our therapy with drugs to correspond to that time in the cell cycle when they are most effective, will further improve the results of chemotherapy. Manipulation of host defense mechanism to combat malignant process may yield better results in the near future. Thorough knowledge about chemotherapeutic agents, used singly or in combination, will be prospective. Supportive therapy including platelet and white blood cell transfusion, must be made available at low cost and on a larger scale. Combination of drug therapy with other modalities of treatment will further improve the results of chemotherapy[20].

Lastly, India is a vast country, rich in herbal resources and this is the opportune time for the chemotherapists of India, who are busy wth the isolation of new and potent drugs at fundamental level, to explore the possibility of evolving new drugs from herbal sources of our country particularly at the Himalayan ranges.

HARISADHAN DATTA

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(*Continued from page 32*)

had herpes zoster first and then developed varicella. The case reported here had also unilateral herpes zoster followed by varicella. Variable lag period between the simultaneous occurrence of herpes zoster and varicella may have possible relation with severity of infection and disturbed immunological aspects due to presence of such a precipitating factor as there have been many reports of increased severity of herpes zoster and varicella infection in persons following steroid therapy (Shee and Fehrsen, 1953; Haggerty and Eley, 1956; Finkel, 1961; Rado *et al.*, 1965; Hope-Simpson, 1965; Gold, *loc. cit.*), irradiation (Pendergrass and Kirsh, 1948), associated lymphoproliferative diseases (Yaffee and Greenberg, 1961; Mosonyi *et al.*, 1963; Gold, *loc. cit.*), spinal tumour (Kamman, 1928), malignancy (Hope-Simpson, *loc. cit.*; Gold, *loc. cit.*), arsenic poisoning or therapy (Jacob, 1931; Rado *et al.*, *loc. cit.*) or in a patient in whom immunologic factors of resistance were subnormal because of generalised illness (Gold, *loc. cit.*).

Miliary tuberculous infection was associated with herpes zoster and varicella in one of the 3 cases reported by Almyeda (*loc. cit.*). Similarly the cases reported by Vassa *et al.* (*loc. cit.*) had tuberculous lymphadenitis and cold abscess. The case reported here had associated bilateral pulmonary tuberculosis.

SUMMARY

A case of simultaneous occurrence of herpes zoster and varicella in a patient having pulmonary tuberculosis is reported. Relevant literature is reviewed.

ACKNOWLEDGMENT

We are thankful to Dr. M.N. Jindal, Dean, M.P. Shah Medical College and Irwin Group of Hospitals, Jamnagar for allowing us to publish this paper.

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CURRENT TOPIC

Counselling in Genetic Disorders of the Eye

GEETA TALUKDER*

The eye is an extremely sensitive organ and is liable to be affected by a large number of diseases—traumatic, infective, degenerative, metabolic and malignant. With the control of infective diseases the accent is gradually being directed to the control and detection of degenerative and metabolic diseases affecting the eye. In 1922, 30% of all the blind in the UK, were children affected by ophthalmia neonatorum; in 1971, 70% of the blind in the same country were of the older age group. In our country at present infections and deficiency conditions are still the cause of blindness in the young. However, with improvement of health care the diagnosis of degenerative conditions is also coming to the fore.

The eye is affected by a variety of conditions due primarily to genetic aetiology. Beside congenital malformation syndromes and metabolic diseases a large number of degenerative diseases and even malignant conditions have a definite inherited factor. The eye being easily available can also be utilised for the diagnosis of a variety of conditions. It is customary to divide genetic diseases into the following categories:

(1) Those due to chromosomal aberrations—autosomal or sex-chromosomal.

(2) Those due to single genes of large effect, dominant recessive and sex-linked.

(3) Those due to polygenic or multifactorial causes.

Chromosomal aberrations—These comprise not more than 1 per 100 births. The autosomes carry a large number of genes and any aberrations are usually associated with multiple congenital defects. In about 90% this causes early abortions and only a few survive neonatal life. The sex chromosome errors are more compatible with life and the incidence at birth is also higher Table 1 gives a few of the common ocular abnormalities associated with chromosomal aberration syndromes.

Errors in chromsome structure or number are associated with mental and physical defects and detection is by examination of the cells of the bone marrow, cultured leucocytes, skin and other tissues after suitable treatment. Present improvements in techniques including banding by fluorescence and differential Giemsa and autoradiography have been automated and computerised to make it possible for us to detect minor changes in the chromosomes. The majority of cases are due to chance mutation in the ovum, sperm or fertilised zygote and recurrence during future pregnancies is rare. For example, in the commonest autosomal defect, trisomy 21 or Down's syndrome the cause is usually a non-disjunction and this occurs in older women. In only 5% the cause is a translocation in which only 0.5% may show a defect in the mothers chromsome complement. Thus chances of recurrence in mothers is low after a mother has one Down's baby. although theoretically more than that of normal mothers. In mothers below 30 years the chance of recurrence is 1 in 500, above 30 years 1 in 450 and above 40 years 1 in 50. For translocation carrier mothers the risk is 1 in 25 for most types.

Table 1—Showing Chromosomal Aberrations Associated with Some Ophthalmic Defects and Disorders

Disorders	Reported chromosome syndromes
Epicanthal folds	Trisomy 21, 22. Syndromes 4p+, 4p—. 11p+, 11q—, 15q+, 13q+, 13q—, 48 XXXX
Antimongoloid slant	Trisomy 22, ring 21. Syndromes 4p+, 4p—,5p—,8p+, 10q+, 11p+, 15q+, 21q—, 22q+
Coloboma	Trisomy 22, 13, 18. Syndromes 4p—, 13q—, 13q+, 22q+
Hypertelorism	Trisomy 22, 14. Syndromes 4p+, 4p,—5p+,5p—,7q+,9p+,9p—,18p+, 19q+ 22q+, 49 XXXXX, 49XXXXY
Microphthalmia	Trisomy 13. Syndromes 4p—, 4q+, 5p—, 10q+, 13q—, 18p—
Lens opacity	Trisomy 21, 13. 18. Syndromes 15q+, 3q21qt.
Retinoblastoma	13q—, 13q22—
Strabsimus	6p+, 48XXXX
Ptosis	Trisomy 18. Syndromes 19q+

Diseases due to single genes of large effect—These again comprise 1 in 100 livebirths and some are obvious only late in life. A large number of diseases like Marfan's syndrome, mucopolysaccharoidosis, lysosomal enzyme diseases and albinism fall into this category (Table 2).

A diagnosis of the gene controlled diseases is usually dependent on a very careful clinical examination and detailed family history. When observing the eye the importance of looking out for very minor defects cannot be overemphasised. Once the ocular defect has been clarified the existence of systemic disorders have to be looked for by various biochemical, radiological and other tests. This may appear to be the statement of an obvious fact but the considerable overlap between clinical appearance of a large number of diseases inherited in different manners makes diagnosis often difficult. It is now possible to determine the basic enzyme defect in many diseases, e.g., Tay-Sachs disease, mucopolysaccharoidoses, galactosaemia, etc., but this is usualy difficult in clinical practice. It is also possible in some cases to determine the enzyme content of cultured foetal cells from the amniotic fluid as an aid to diagnosis of the condition in the foetus.

Parents of an affected child may ask as to the risk to subsequent children or the patient may be interested in his or her children's chances of developing the condition. Rarely persons married to close relatives may be conscious of the chances of their progeny being affected. A correct diagnosis of the condition and a detailed pedigree analysis is the first perquisite.

For autosomal dominant conditions (Table 2) the inheritance is usually linear, i.e., from parent to progeny and there is no sex preponderance. About 50% of an affected person is liable to be affected. However, variations produced by the nature of the gene like its penetrance and expressivity may cause alterations so that the disease may skip generations or may be full-blown in one and very minor in the other. Colobomata complex or osteogenesis imperfecta are conditions where various patterns are observed in the same pedigree.

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*[illegible].D., Ph. D., Research Associate, Centre for Advanced Studies in Cell and Chromosome Research, Department of Botany, University College of Science, Calcutta

Table 2—Showing Some Conditions Affecting the Eye and Their Inheritance Patterns

Diseases	Inheritance patterns	Diagnosis
Defects in development:		
Coloboma complex	Autosomal dominant(AD)	Pedigree
Microphthalmia		
with anophthalmos	Autosomal recessive (AR)	"
with other defects	Autosomal dominant	"
Aniridia	Autusomal dominant	"
Buphthalmos	Pseudo dominant	"
Glaucoma:		
Open angle	AD, AR X linked (XR)	"
Closed angle	Multifactorial	
Cataract:		
Senile and presenile	Multifactorial, also AD and XR	Pedigree studies
Early onset	AR like galactosaemia, homocystinuria, retinitis pigmentosa, microphthalmia and also in chromosomal diseases	Biochemical analysis
Congenital optic atrophy	AD, XR and also in Krabbes disease	
Retinal dysplasias	AD, AR Also in Tay-Sachs, Niemann-Pick disease, retinitis pigmentosa, albinism, Sjogrens, Refsum's and many other diseases	Pedigree studies
Colour vision	X linked	Pedigree studies
Corneal opacity	Mucopolysaccharoidosis, GM1 gangliosidosis, Cu metabolism	Biochemical tests Enzyme assays

Persons who are affected for recessive genes are apparently normal if heterozygous and only a double dose of the gene from two carrier parents causes overt disease. Thus the inheritance is often horizontally transmitted, i.e., siblings are affected in normal parents. It is possible by biochemical tests to determine the carrier states of only a few of the diseases but improvements in biochemical methodology is making it possible in greater numbers. For counselling it is usually seen that both parents are carriers and the risk of a subsequent child being affected is 50%, with 25% carriers and 25% perfectly normal. If one of the parents is a carrier and the other affected the chances of a normal child is very low. Consanguinity has been blamed to be a cause in cases where such conditions exist in the community.

Diseases due to multifactorial inheritance—The common diseases affecting man are usually caused by more than one gene so that variable inheritance patterns are observed and external factors often appear to affect the incidence. Errors of refraction are believed to be inherited by multiple genes but families of high myopia occur frequently. Here the risk is 1 in 10 to siblings affected and 1 in 6 to children of persons affected.

For congenital sporadic cases of glaucoma the risk to subsequent children is 1 in 40 but if either parent is affected the risk is about 1 in 20. For concomitant squint with hypermetropia with a positive family history the risk is 1 in 7, if parent is affected the risk is higher 1 in 2. The risks are calculated according to statistical data and usually a risk of 1 in 10 or higher is called 'high risk' and 1 in 20 or lower a 'low risk'. However, it is common to have exceptions to the rule.

Retinoblastoma has long been considered to have agenetic risk especially bilateral types where unaffected heterozygotes are seen to transmit the condition so that sibs are affected. Usually it is customary to say that the risk to a subsequent child of unaffected parents being affected is 1 in 20. The occurrence of chromosomal aberrations observed in retinoblastoma is however, not of diagnostic significance.

In India the occurrence of genetic diseases is approximately equal to or comparable to that of the rest of the world. However, the co-existence of infective and nutritional disorders alter the appearance and may hinder the diagnosis. It is to be expected that counselling for genetic diseases would gain in importance with improvement in family welfare planning. This will not only allay a lot of mental agony but also prevent recurrence of such diseases.

NOTES AND NEWS

Millions in Rural India without Safe Drinking Water Facilities

According to a background report of the Delhi Science Forum although the figure of rural population in India receiving water supply has gone up from 26 million in 1971 to 155 million in 1981, about 361 million still do not have adequate drinking water facilities. The report also says that of the 1.53 lakh problem villages (as identified in 1972), just 40,000 had been covered till the end of March, 1977.

The report, presented by the Forum at its recent seminar on "India and the international drinking water supply and sanitation decade" contends that if the dream of international decade is to be realised priorities will have to be redefined in a big way. These include a massive chlorination of rural wells, hand pumps and sanitary dug-well schemes, insistence on drainage around wells and hand pumps, a programme of health education, community water supply and sanitation and the development of appropriate technologies —*Times of India.*

Drug Rules Amended

The Government of India has issued a notification amending the Drugs & Cosmetics Rules abolishing brand names on preparations containing any new drugs as the single active ingredient.

Under this notification, brand names in respect of preparations containing any of the following five drugs as the single active ingredient has been abolished: Analgin, aspirin and its salts, chlorpromazine and its salts, ferrous sulphate and piperazine and its salts.

The instructions would be effective from *1 August, 1981.*

The notification also provides for the proper name of a drug printed or written in a more conspicuous manner than the trade name with immediate effect.

REVIEW

Drugs and Ocular Tissues: Second Meeting of the International Society for Eye Research, Jerusalem, 1976, Ed., S. Dikstein, 1977, S. Karger, Basel, Munchen, Paris, London, New York, Sydney, 22.3 cm. x15.2 cm., pp. xx+662, Price S.Fr./DM 69, US $ 34.25.

This multiauthored book deals comprehensively with the biochemical, physiological and pharmacological aspects of ocular tissues. In 10 chapters the authors have dealt with effects of drugs on (1) extraocular muscles, (2) conjunctival sac, (3) the transport and permeability of the corneal epithelium, (4) aqueous humour formation and drainage, (5) iris muscle and ciliary muscle, (6) lens, (7) vitreous. Chapters 8, 9 and 10 have dealt with synaptic transmission in the retina, pharmacological aspects of vascular proliferation and ocular side-effects of drugs.

The first and second chapters give exhaustive and comprehensive lists of systematically administered agents and drugs having effects on extra-ocular muscles and conjunctiva respectively.

Solutions should be prepared under sterile conditions and a preservative added. Prolonged use of the phenyl mercuric salt has been reported to produce band keratitis in USA and should have been discussed although this reviewer agrees that "exploitation of the physiological transport mechanisms in the design of drugs and vehicles would seem a target for future research."

Chapters 3, 4 and 5 are extremely important ones and will provide materials for research workers all over the world in future. Exhaustive discussion on chloride bump and formation of aqueous humour has been done.

The diseases of vitreous, expected to be influenced by drugs, are also clearly enunciated. The book is highly recommended to ophthalmologists, pharmacologists, biochemists and postgraduate workers.

J. BOSE

OBITUARIES

Dr. Harinarayan Mukherjee

Dr. Harinarayan Mukherjee, a former President of the Asansol Branch of IMA in West Bengal passed away on 21-1-1981. Born in 1913 Dr. Mukherjee passed the M.B.B.S. examination from Calcutta Medical College in 1938 with record marks in midwifery. After qualifying for the D.T.M. in 1941 he settled in Asansol and practised for 40 years in the town and the surrounding coal-mine areas. One of the founders of the Asansol Branch and its first Secretary, he served as its President from 1958 to 1962 and was also elected Vice-President of the State Branch for 1969-70. He played a leading part in raising resources for the building of the Asansol Branch. He was founder Secretary of Asansol Leprosy Relief Society and was also Secretary of the local TB Association for a period. He was also instrumental in establishing several educational institutions in Asansol.

Dr. Y. M. Donde

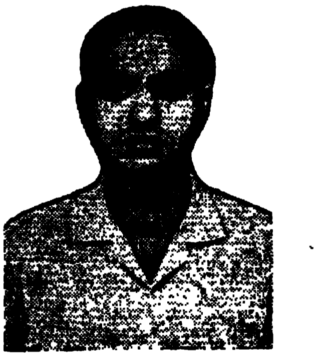
Dr. Yeshwant Moreshwar Donde, a member of the Murtizapur Branch of IMA in Maharashtra, passed away on 26-1-1981. He was 76. Dr. Donde belonged to the first batch of medical graduates from Sheth G. S. Medical College, Bombay. He started practice at Murtizapur and shortly established himself as a practitioner. Besides the activities of the local branch of IMA he took keen interest in the development of Ambhera Leprosy Centre, which he regularly visited. He is survived by three daughters.

DR. H. N. MUKHERJEE

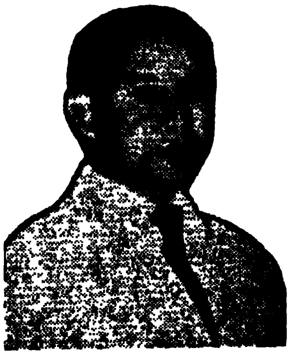
DR. Y. M. DONDE

Dr. B. N. Bhattacharjee

Dr. B. N Bhattacharjee, a member of the Dhanbad Branch of IMA in Bihar, died on 26-1-1981 of heart failure. Born on 11-9-1935 Dr. Bhattacharjee passed the M.B.B.S. examination from the Calcutta Medical College in 1957. He first joined the TISCO as medical officer at Jamadaba and specialised in anaesthesiology. Later he joined the BCCL in 1974 and served as medical officer at its Bhowrah, Layabag, Kustore and Jealgora hospitals before being finally posted as Deputy Superintendent, Iodna Hospital. He was also associated with many social and cultural organisations in the district. He is survived by his wife and minor children.



DR. B. N. BHATTACHARJEE



DR. R. C. BAISHYA

Dr. R. C. Baishya

Dr. Rohine Charan Baishya, a member of the Shillong Branch of IMA, passed away on 19-2-1981 following a cerebrovascular attack. Born on 1-3-1930 Dr. Vaishya graduated in medicine from Assam Medical College, Dibrugarh in 1953. He went for further studies in tuberculosis and obtained DTD from the Delhi University in 1956. He joined the Assam State Medical Services as Astt. Surgeon-I and was later promoted to the rank of Deputy Director of Health Services. He served as Superintendent, Reid Chest Hospital from 1970 under the Assam Government and subsequently under the Meghalaya Government. He joined the IMA in 1973 and took keen interest in various activities of the Shillong Branch.

SUPPLEMENT

Vol. 77, No. 2 : Calcutta : July 16, 1981

Association Notes

LVII All—India Medical Conference : Nagercoil : 1981

Members intending to attend the forthcoming 57th All-India Medical Conference to be held on December 28-30, 1981 at Nagercoil, Tamil Nadu, have been requested by the Reception Committee to register themselves and book their accommodation early, as December happens to be the tourist season for Kanyakumari and Nagercoil. For detailed information they are advised to contact Dr. Jayaseelan Mathias, Organising Secretary, 57th All-India Medical Conference, Mathias Hospital, Nagercoil 629001, Dist. Kanyakumari, Tamil Nadu.

Donation by Kanpur Branch to IMA Building Fund

The Kanpur Branch of IMA has donated Rs. 25,000 for the IMA Building Fund to be utilised for the Headquarters Building in New Delhi. In course of a letter to Dr. Sushil Sheth, Hony. Secretary, Kanpur Branch, Dr. M.G. Garg, Hony. General Secretary, IMA (Hqs) has expressed gratitude to Kanpur Branch for this magnificient donation to the IMA Building Fund.

State Medical Conference

XVII Rajasthan State Medical Conference Jhunjhunu : 1980

The 17th Rajasthan State Medical Conference was held on October 25-26, 1980 at Jhunjhunu. About 300 delegates attended the conference organised in a semi-rural area of the State for the first time. The inaugural session was held at Rani Temple Complex on 25-10-80. Sri Badriprasad Gupta, Health Minister of Rajasthan was present as the chief guest and Dr. I.G. Bhatt, Vice-President, IMA (Hqs) presided over the function. A novel feature of this session was that it was held along with the annual conferences of Rajasthan Skin and Venereal Diseases Association and Tuberculosis and Chest Diseases Association. Dr. B. M. Sharma and Dr. M.P. Mathur, President's of the respective Associations, were not only present on this occasion but also addressed the gathering.

The inaugural session started with the address of welcome given by Dr. (Mrs.) Rajkumari Bhargava, Chairman Reception Committee. Following this Dr. R. L. Gupta, Hony. State Secretary, read out the annual report. Dr.K. C. Mathur, President of the State Branch for 1980-81 next delivered his address touching briefly on the achievements of the IMA during the preceding year and giving an outline of the organisational plan for the coming session. Speaking on the occasion the State's Health Minister, Sri Badriprasad Gupta, apprised the members of the various measures that the State Government proposed to adopt for removing the grievances of C.A.S. doctors, He announced that the re-organisation of Medical and State Health Services in Rajasthan would be put into effect immediately and that Government would sympathetically consider the suggestions that might be given by the IMA members at this general body meeting on the placement policy declared by the Government in 1980 for the health service doctors.

Sri Gupta later gave away the following prizes awarded by the State Branch: 1. Best IMA Worker—Dr. Suresh Joshi (Dungarpur). 2. Best Big IMA Branch—Kota Branch. 3. Best Small Branch—Banswara Branch. 4. Best Worker for the IMA Bulletin—Dr Suresh Maheshwari (Bikaner). 5. 2nd Best Prize for Original Research Paper presented at 1978-79 Conference—Dr. Harband Singh (Ajmer).

In course of his presidential address Dr. I.G. Bhatt, Vice-President, IMA (Hqs), enumerated the various ways in which IMA was serving the members of the profession. The Conference closed with the vote of thanks proposed by Dr. K.L. Gupta, Organising Secretary. Several symposia were organised during the scientific sessions on 'Rural Medical Care', 'Diabetes' and 'Laparoscopic Technique of Female Sterilisation'.

Branch Notes

ASSAM STATE BRANCH

Silchar Branch—At a meeting held on 12-12-80 to observe the first death anniversary of Dr. Anjan Chakravorty, students of the Silchar Medical College, members of IMA and leading citizens of Silchar deplored the failure of the State Government to take any positive steps to punish the culprits involved in the murder of Dr. Chakravorty. The meeting reiterated the demand for a judicial enquiry without further delay and urged the State Government to sanction and arrange for immediate payment of adequate compensation to the bereaved family considering their financial distress. The meeting also requested the State authorities to allot a plot of land in the Silchar Medical College campus for erecting a memorial of late Dr. Chakraborty. The Hony. State Secretary declared in the meeting that a medal will be awarded annually in the memory of late Dr. Chakravorty to a regular candidate of Silchar Medical College obtaining highest marks in medicine in the final MBBS examination. Dr. H. K. Das Biswas, Working President of the branch presided over the meeting.

BIHAR STATE BRANCH

Begusarai Branch—At a meeting held on 24-11-80 with Dr. K.D.N. Aggarwal in the chair, Dr. M.N. Roy, Organising Secretary, Sub-Faculty of IMA College of G.P's. informed that the F.C.G.P. Examination had been successfully conducted. Dr. P. Gupta and Dr. S.K. Lal suggested some measures including development of the IMA Library and separate rooms for teaching and seminar to enable candidates to make better preparation for the examination. The Hony. Secretary urged the members to actively cooperate in the membership drive.

Jagannathnagar Branch—At a meeting held on 1-12-80 it was decided to pursue on priority basis the efforts to fulfill some of the many grievances of the medical officers serving under HEC Limited, Ranchi. The grievances included the following: (a) Implementation of the Board of Director's decision to treat NPA as pay for all purposes including allotment of quarters. (b) Promotion of medical officers in all categories as per CHS Rules and giving retrospective effect to the promotion of such GDMOS (Grade—II) as are not promoted in time on completion of 5 years of service in that grade. (c) Reimbursement of expenses on the maintenance of conveyance for official purposes to be given to all medical officers and raising the quantity for such reimbursement. The meeting also decided to examine the feasibility of opening an IMA free clinic for the benefit of the general public.

GUJARAT STATE BRANCH

Nadiad Branch—A lecture was arranged for members on 4-10-80 on "Rights, duties and obligations of income-tax payee under the I.T. Act", the speaker being Sri N.M. Patel, an I.T.O. from Nadiad. A special meeting was held on 12-10-80 for the ceremonial installation of the new office-bearers of the branch for 1980-81. Dr. M.G. Patel, President of the State Branch was present as the chief guest and Dr. I.G. Patel, Vice-President, installed the office-bearers. During the month of October, 1980 the branch had 98 members on the roll including 20 couple members.

HARYANA STATE BRANCH

Sirsa Branch—At the annual general meeting held in the first week of October, 1980 the following were elected office-bearers for 1980-81; President—Dr. Karan Singh; Vice-President—Dr. (Mrs.) Santosh Aggarwal; Hony. Secretary—Dr. K G. Gupta; Jt., Secretary—Dr. Gurtej Singh; Treasurer—Dr. M.P. Saraf; Members of Central Council—Dr. K.K. Rai and Dr. J.K. Bishnoi; Members of State Council—Drs. Bhagirat Bishnoi, Vinod K. Gupta and R. Thakur. Dr. S.S. Shah, Chief Medical Officer, was elected patron.

Earlier placing his report the Hony. Secretary, Dr. S.P. Garg, informed the members that the Sirsa Voluntary Blood Donors Society formed under the auspices of the branch with 42 members, had been inaugurated by the Deputy Commissioner of Sirsa and that some of the most active members of the branch had recived beautiful mementos and certificates from the D.C. The meeting closed with the formal installation of the new President, Dr. Karan Singh by the out-going President, Dr. O.P. Chaudhary.

UTTAR PRADESH STATE BRANCH

Bareilly Branch—The demise of Dr. C.P. Singh, a member of the branch, was mourned at a meeting held on 5-9-80. At another meeting held on 18-11-80 members condoled the demise of the mother of Dr. Harish Aron and Dr. A.B.L. Mathur.

Lucknow Branch—At a meeting held on 24-11-80 the branch mourned the demise of Dr. Bhagawant Gopal, a former Deputy Director of Medical and Health Services, U.P. and an active member. A resolution was adopted conveying heartfelt sympathy to the bereaved family.

Moradabad Branch—At a meeting held on 27-11-80 with Dr. R.D. Gupta in the chair scientific lectures were given by Dr. J. S. Gupta, pathologist and Dr. B.K. Dutta, child specialist from the District Hospital. Interesting cases, pathological specimens and x-ray plates were demonstrated by Drs. P.K. Gupta, S.K. Mehta and Harnam Singh. Drs. N. Das, U.C. Rastogi and Harnam Singh took part in the discussions that followed. The Hony. Secretary informed the members that the branch had been adjudged the best branch in the State for doing community development service and had obtained a certificate of merit for being the 3rd best branch in the State for organising refresher course.

Community Welfare Work by Branches

Banaras Branch(Uttar Pradesh)—In its budget for 1980-81 adopted on 3-10-80 the branch made provision for its various welfare projects including the Preventive Medical Centre, rural health service, and health education. The branch also finalised the arrangements for starting the Oxygen Bank, the first of its kind in the State.

During the month of November, 1980 2394 children, including 1000 new and 1394 old cases, were immunised at the preventive medical centre run by the branch at IMA House, Chetganj. The ambulance service of the branch, which functioned for 24 hours, attended 69 public calls covering a total distance of 1509 km. At the Family Welfare Centre run by the branch in V.S. Mehta Hospital, Ramghat, 12 tubectomy operations were done and a large number of eligible couples were inducted to the use of various contraceptive measures. Besides 86 mothers and 22 children were given iron tablets.

Coimbatore Branch (Tamil Nadu)—On the eve of the Deepavali in November, 1980, members members visited the Nirmal Hridaya Home for the dying and destitutes at Pulikaulam and distributed sweets to the inmates after giving them a routine medical check-up.

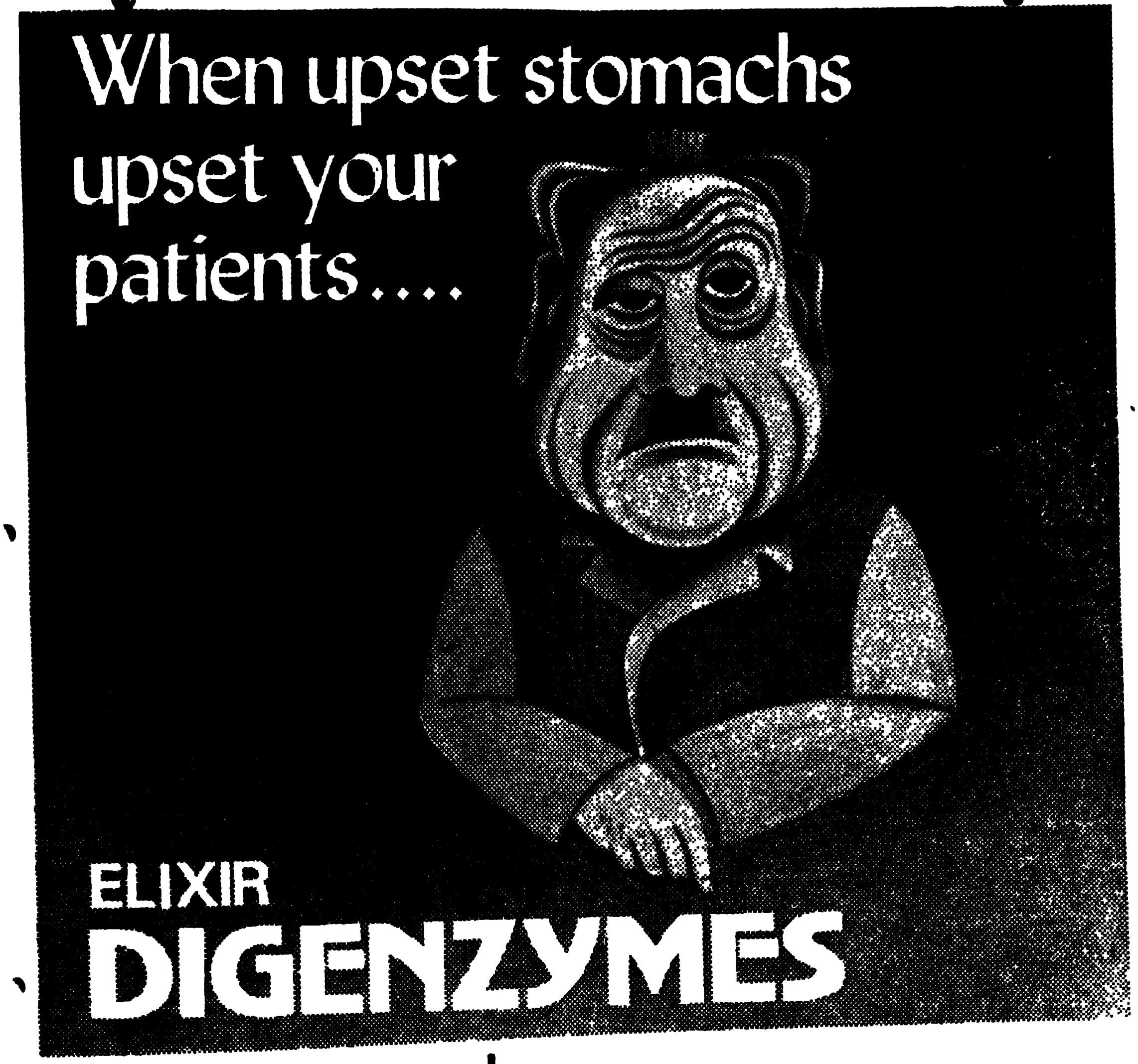
Lucknow Branch (Uttar Pradesh)—The branch organised a baby show and a fancy dress competition on 2-10-80 in which about 200 children of different age-groups participated. They were given a health check-up by a team of paediatricians led by Prof. P. N. Saxena and Dr. Sabitri Dongey. The successful children were given prizes by Dr. H.N. Shivapuri. Earlier Dr. B.N. Gupta, President, emphasised the need for providing proper nutrition for children and implementing the measures for prevention of diseases in them. Dr. G.P. Kaushal thanked the judges, the guests and the pharmaceutical concerns for making the function a success.

Madurai Branch (Tamil Nadu)—During November, 1980 in course of a medical check-up programme at Sivananda Tapovanam about 40 persons were examined. Free medical check-up was carried out at Thiruppalai village on 5 week-ends, when a total of 557 persons were treated. About 130 boys and 94 girls were examined at Balar Illum Thirunagar and given advice along with free medicines. Eye camps were conducted in collaboration with Rotary Club and other social service organisations at Achampattu, Singanpureri, Othakadai and Palaganatham. About 1360 cases were attended and a few deserving ones were operated upon for cataract and supplied with glasses. In course of a blood donation campaign conducted at 3 different places at Tiruchirapalli, 249 bottles of blood were collected.

Malda Branch (Bengal)—Members of the branch rendered valuable service in the flood-affected areas of Kaliachak Block I & II, Habibpur Block and English Bazar Block. They treated about 12,500 patients with free medicine and inoculated about 18000 persons against cholera.

In observance of the Foundation Week of IMA Bhawan, the branch organised a free eye camp on 5-10-80. Dr. Pinaki Ranjan Roy, President of the branch, along with Dr. Gautam Roy operated on 20 eye patients including 13 for cataract. Prof. Santosh Kr. Chakraborty, President, National Society for Prevention of Blindness, inaugurated the camp and Sri S. Bose, District Judge, Malda, was present as the chief guest. Dr. Bimal Sarkar, Hony. Secretary, examined the patients on the closing day of the camp.

Moradabad Branch (Uttar Pradesh)—Dr. Harnam Singh, Chairman of the Community Health Welfare and Sub-Committee, gave an account of the activities of the medical care unit at village Akka Dilari and the free immunisation centre at Moradabad for the year 1979-80. Reporting on the activities of the Charity Projects Committee of the branch during November, 1980 he informed that 10 members of the branch travelling either in their own or their colleagues' cars or scooters attended 194 patients in the first month and 31 patients in the second. During the 2 months 75 children were given polio and another 75 triple antigen vaccinations.



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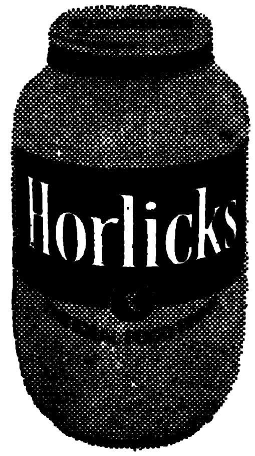

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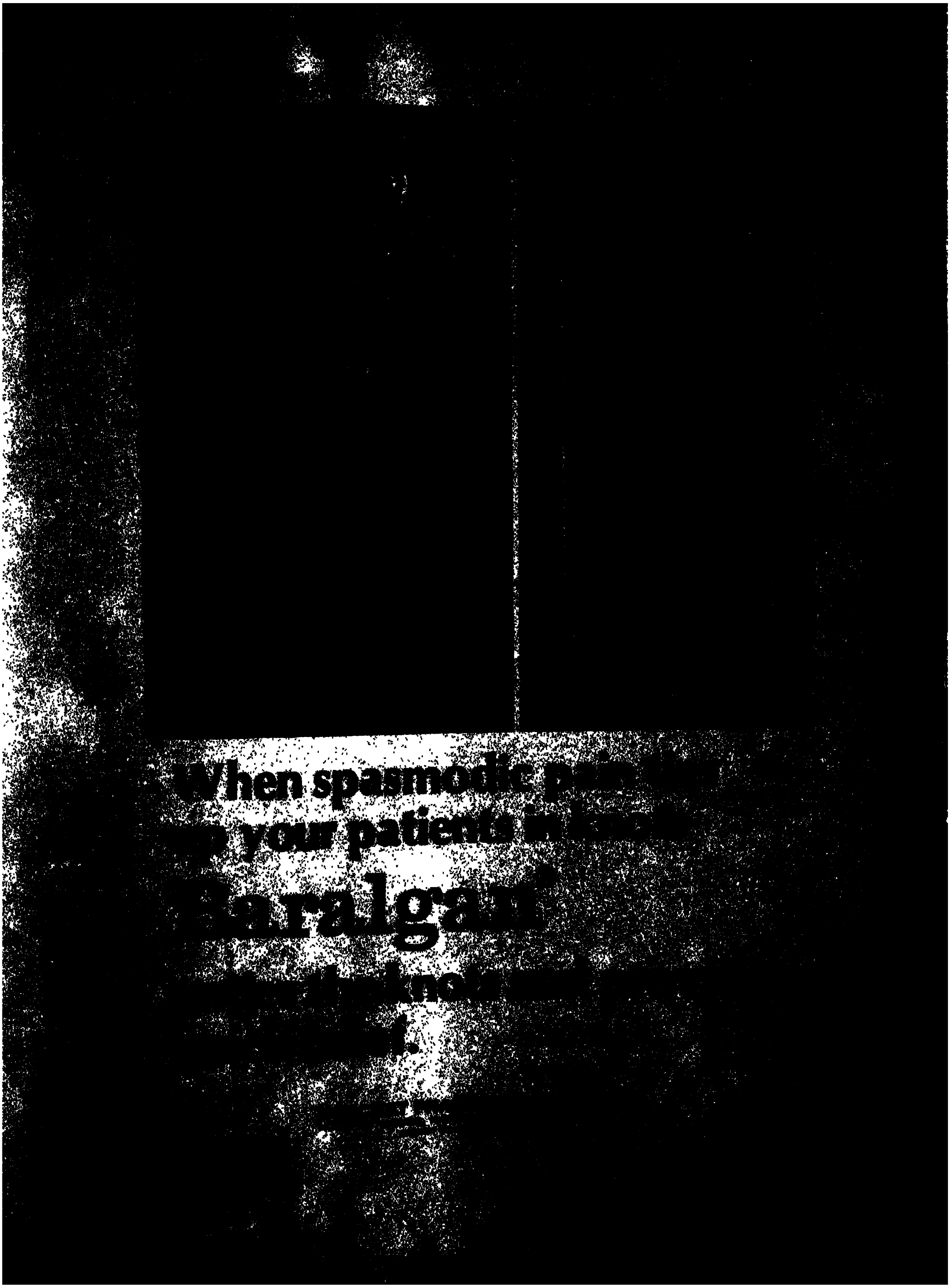
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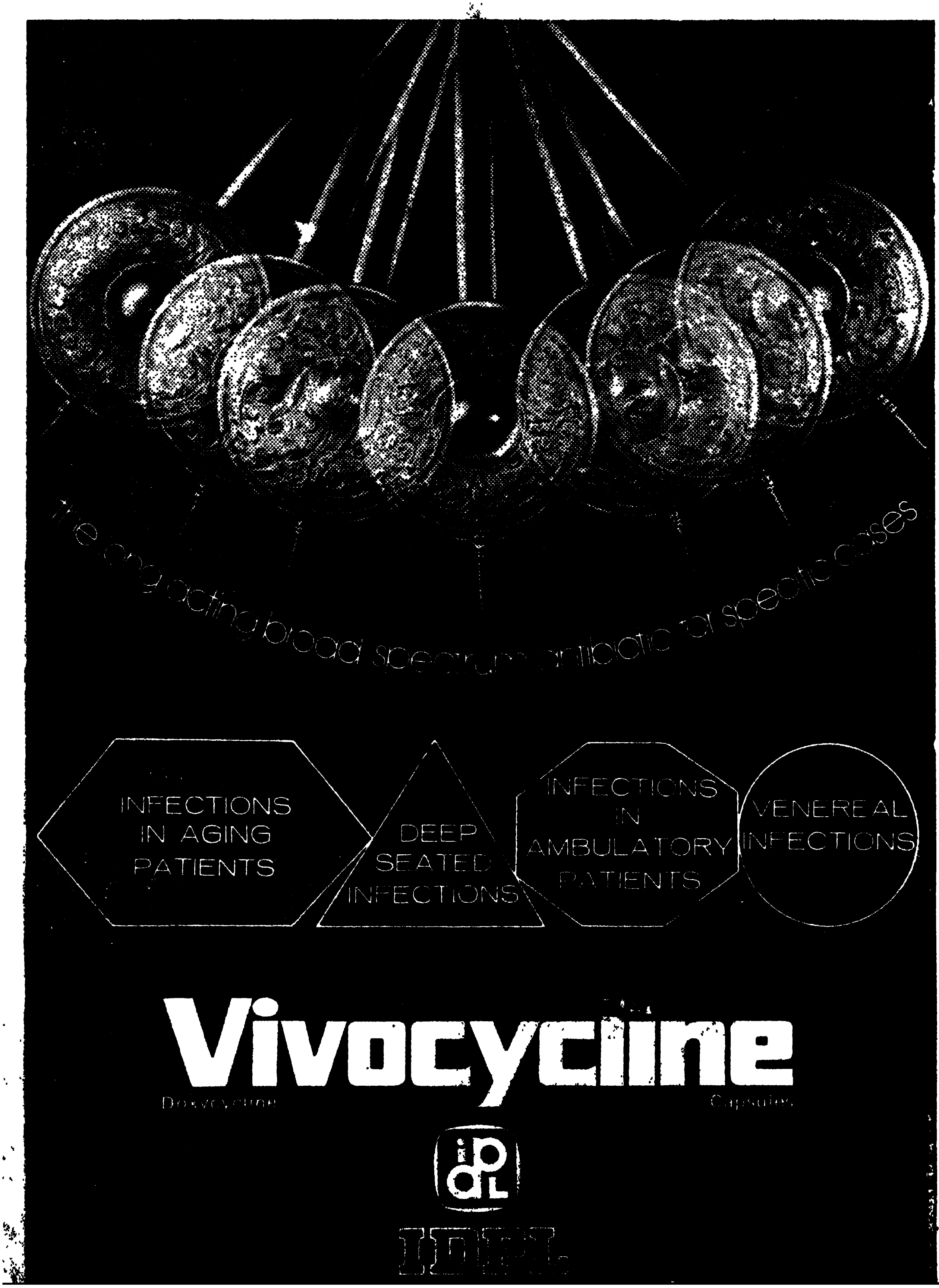
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INJECTION & TABLETS

For prompt anxiolytic, muscle relaxing, hypno-sedating & anticonvulsant actions
★ Effective with remarkable safety margin
★ Rapid in action ★ Well tolerated

INJECTION
COMPOSITION
Each ml. contains:
Diazepam U.S.P. 5 mg
Benzyl alcohol I.P. 1.5% v/v
Ethyl alcohol I.P. 10% v/v

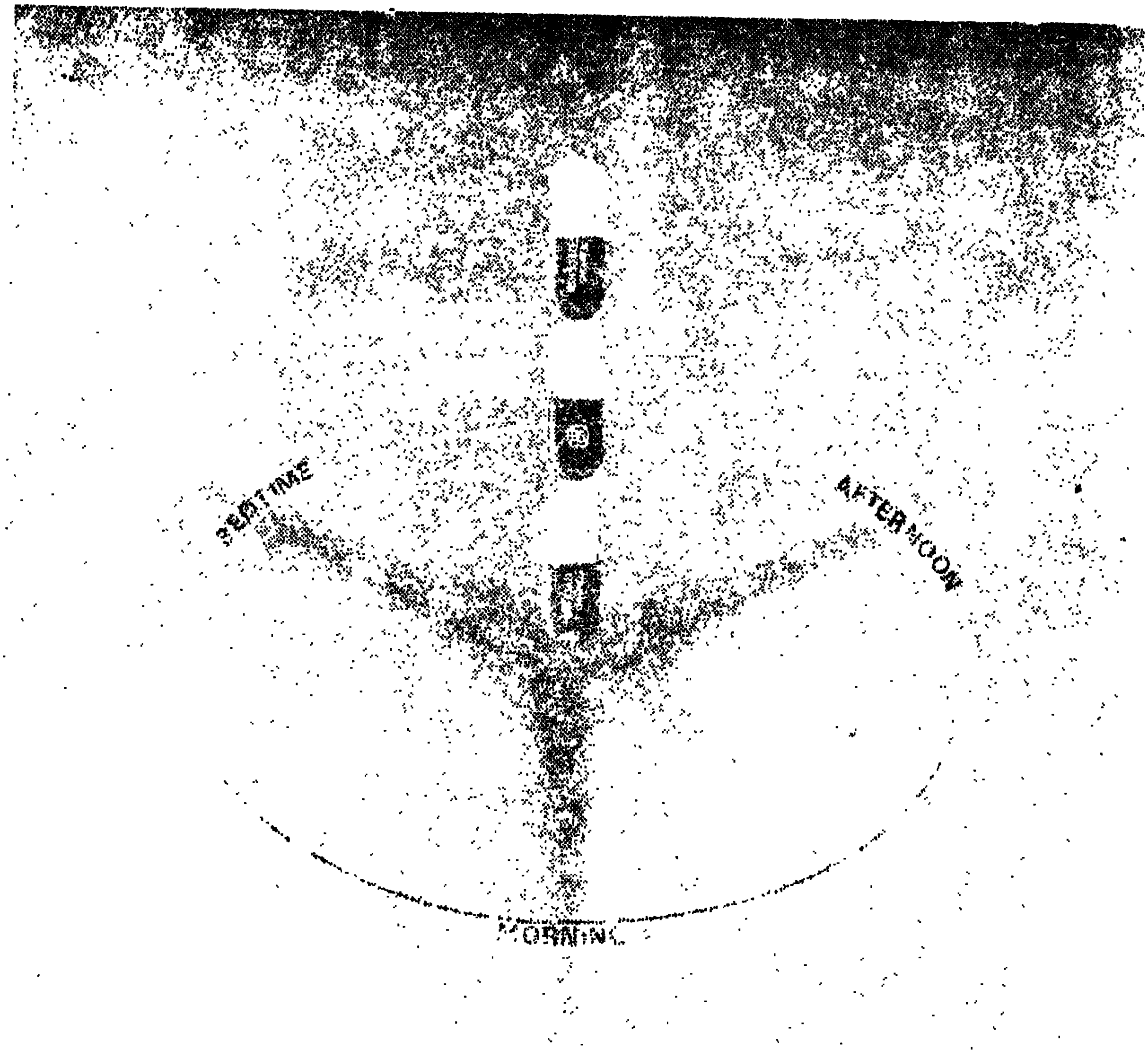
DOSE
Intramuscular or intravenous, 2 to 10 mg repeated in 3 to 4 hours, if necessary, but not exceeding 30 mg in 8 hour period.

PRECAUTION
To be administered I.V. slowly, preferably in a big vein.
Mixing with other aqueous preparations should be avoided. May increase the degree of sedation when used with other sedatives.

PACKING
10 mg 2 ml,
6 ampoules in a box

TABLETS
Each tablet contains:
Diazepam I.P. 5 mg
Available in strips of 10 tablets.

EIP/PXM/CAS-1H/80



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333 mg Tetracycline c̄ 167 mg. Vitamin C Capsules

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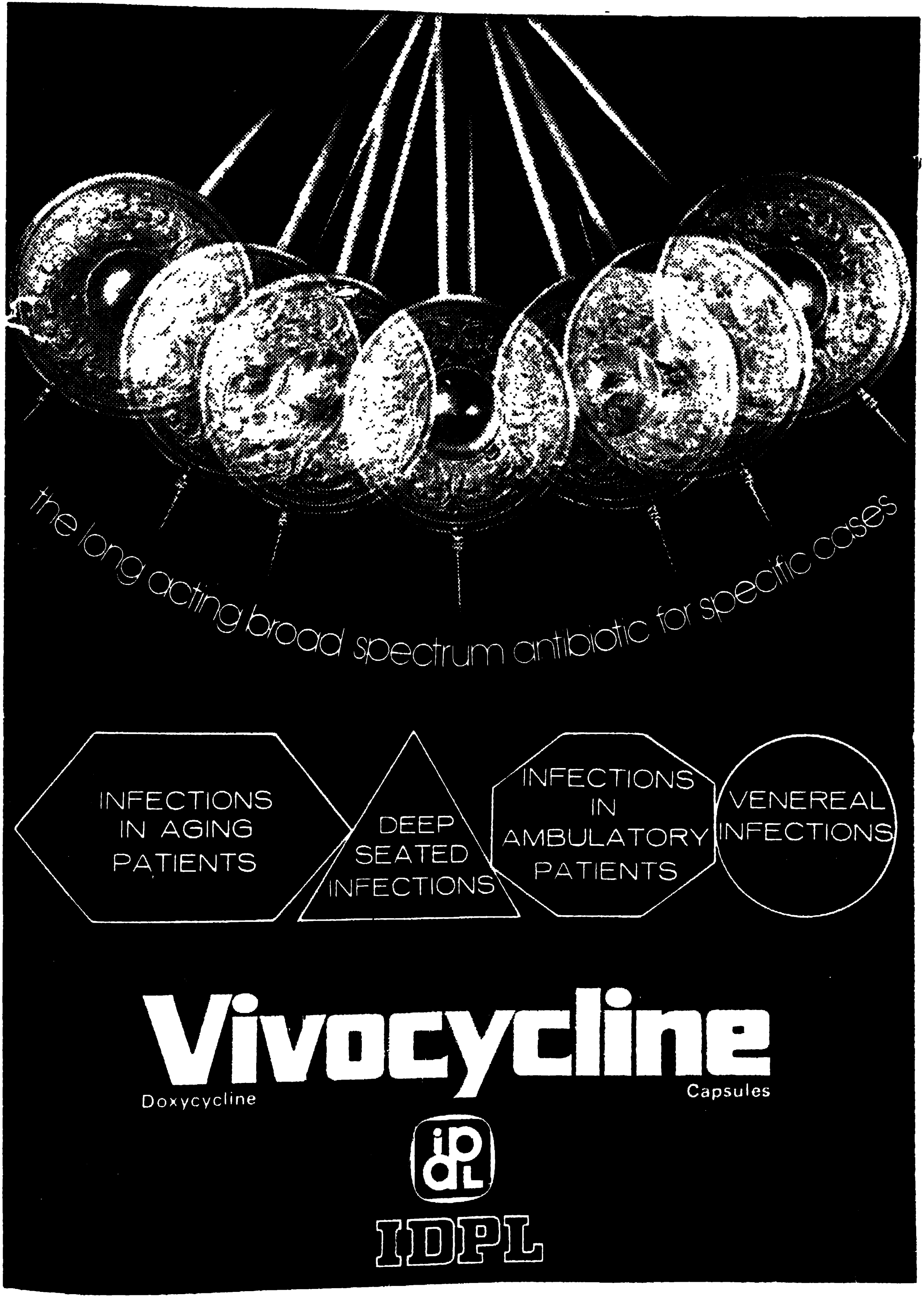
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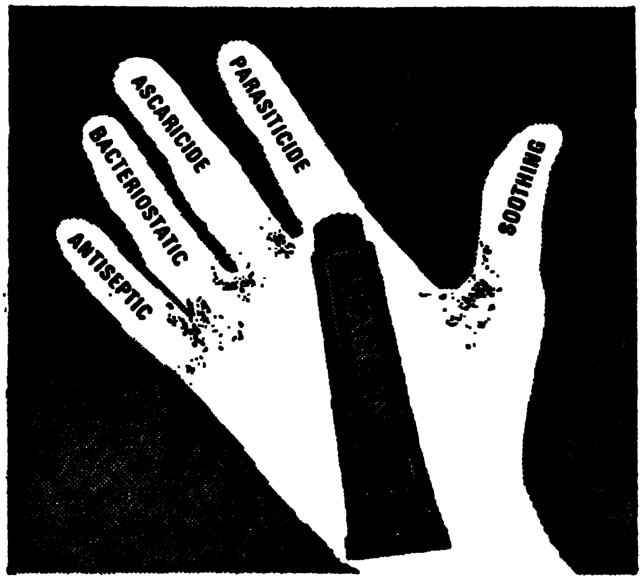
5 way action...

SCABIZAN

FOR QUICK CONTROL OF SCABIES



In the treatment of scabies, control of rapid spread of parasite Acarus Scabies is of primary importance. Scabizan does it effectively. It is equally effective in treating infected scabies wherever they be—webs of fingers, armpits, groins, buttocks and genital parts.

Scabizan is also useful in treating mild infections of Eczema, Ringworm and Lichens.

Scabizan – A balanced formulation for effective control of scabies and associated dermal infections

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Benzyl Benzoate I.P.	15%
Benzyl Acetate	5%
Paraffin base	q.s.

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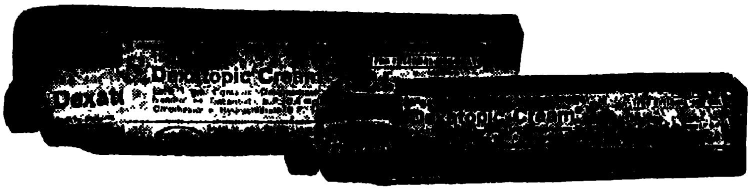
"....Diagnosis seems impossible because different things look exactly the same and similar things appear entirely different..."

—D. M. Mitchell, Practitioner, 1972.



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The safe first-line treatment for common skin disorders.

Composition per 1 gm:

Dexamethasone B.P.	0.4 mg
Chlorhexidine Hydrochloride B.P.	10 mg
Nandrolone Decanoate	0.4 mg

PRESENTATION 5 gm / 15 gm . tubes

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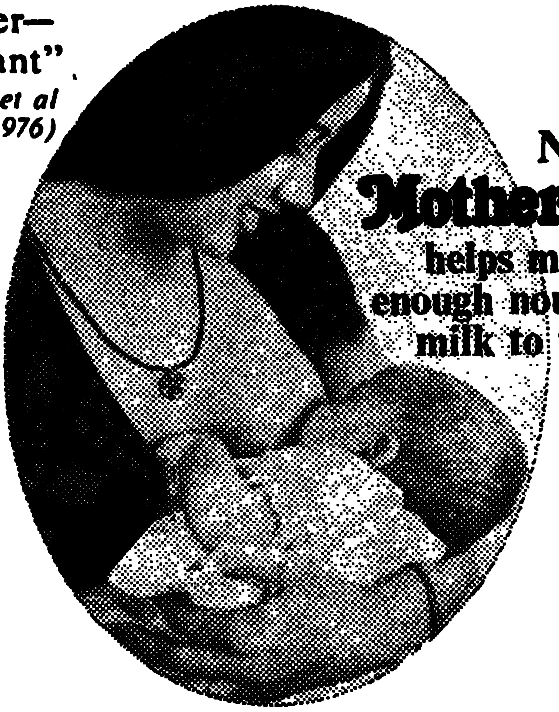
"Feed the mother—
thereby the infant"
—Roberto K. Sosa et al
(1976)



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Energy	...	450 kcals
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Vitamin B_1	...	0.50 mg
Vitamin B_2	...	1.00 mg
Vitamin B_{12}	...	1.25 mcg
Vitamin C	...	50.00 mg
Nicotinic Acid	...	9.25 mg
Folic Acid	...	250.00 mcg
Calcium	...	1.50 g

Advise mothers to breast-feed as long as they can. Recommend Mother's Special to breast-feeding mothers.

Do advise breast-feeding mothers to have 2 heaped teaspoons (20 g) of Mother's Special in 1 glass (200 ml) of hot (not boiling) milk—twice a day, regularly.

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INDIGENOUS DRUGS OF INDIA

Revised and re-written by
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- In Infective Hepatitis helps control the infection and restore back the normal function of liver
- During Jaundice gives strength and stamina to the liver
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TO COMBAT ALL TYPES OF LIVER DISORDERS

TABLETS : In packing of 50. 100 & 400
LIQUID : In packing of 30 ml. 100 ml. & 200 ml.
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3 BROTHERS/ZL/3581

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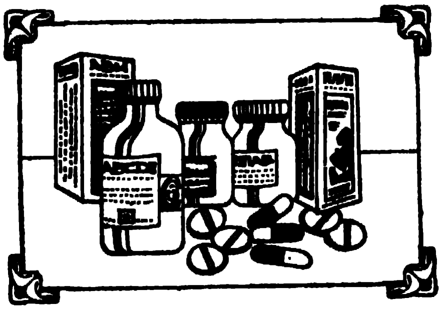

and so does fatigue and weakness...

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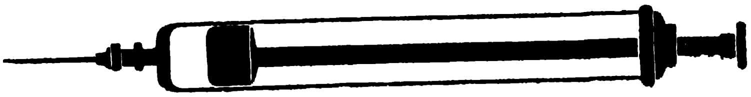

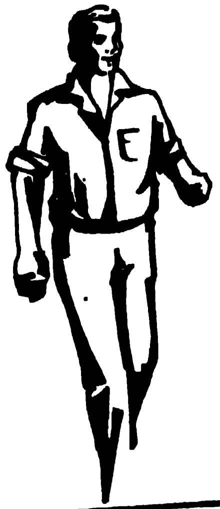

injects renewed vigour and vitality

Composition : Each ml. contains :

Nandrolone Phenylpropionate B.P. 25 mg.
Desoxycorticosterone Phenylpropionate -10 mg

Dosage :

One I.M injection of 1ml. every week for 4-6 weeks.

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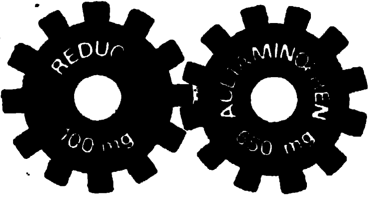

Safer analgesic

Indications

1. Sports Injuries
2. Non-articular traumatic conditions
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4. Post operative pain
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Dosage:

1 tablet 3 to 4 times a day

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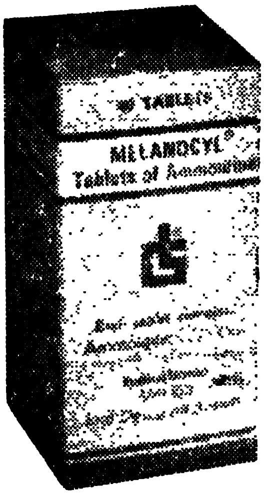
"With such regimen, repigmentary response in most cases and cosmetically acceptable are achieved in 75% of cases."



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FOR ALL ANEMIAS AMENABLE TO ORAL THERAPY

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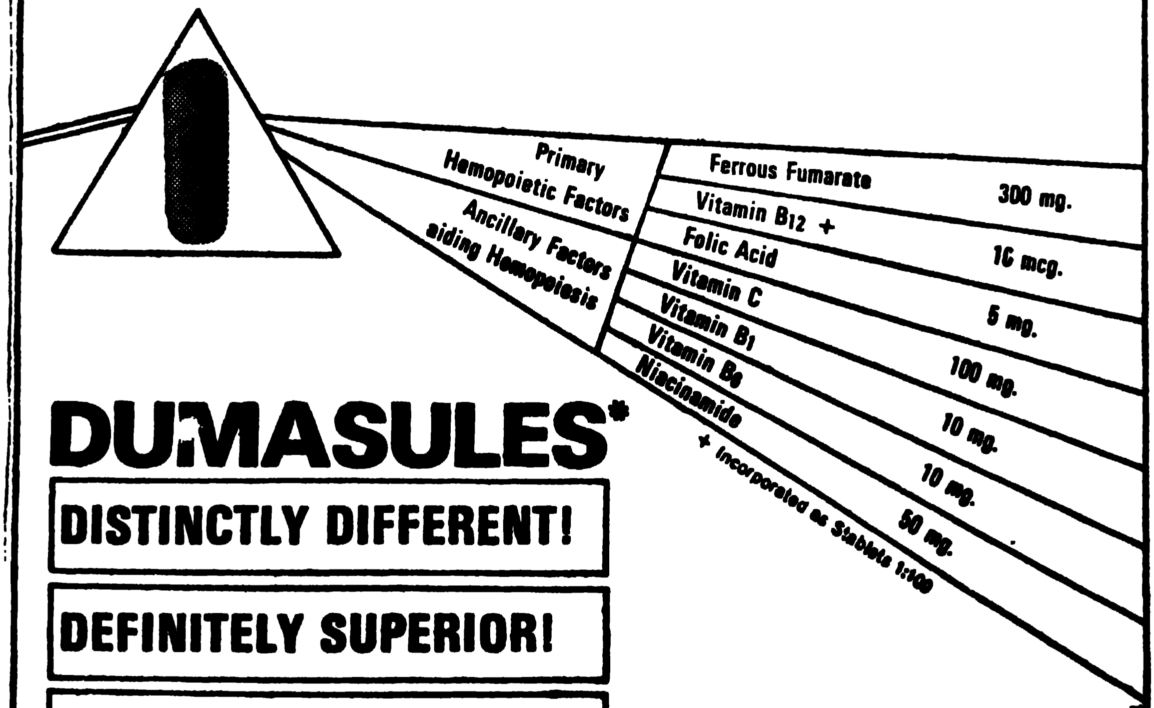
AN ASSURANCE OF ADEQUATE HEMATINIC THERAPY

Each capsule provides



Primary Hemopoietic Factors	Ferrous Fumarate	300 mg.
	Vitamin B_{12} +	10 mcg.
	Folic Acid	5 mg.
Ancillary Factors aiding Hemopoiesis	Vitamin C	100 mg.
	Vitamin B_1	10 mg.
	Vitamin B_6	10 mg.
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+ Incorporated as Stablets 1:100

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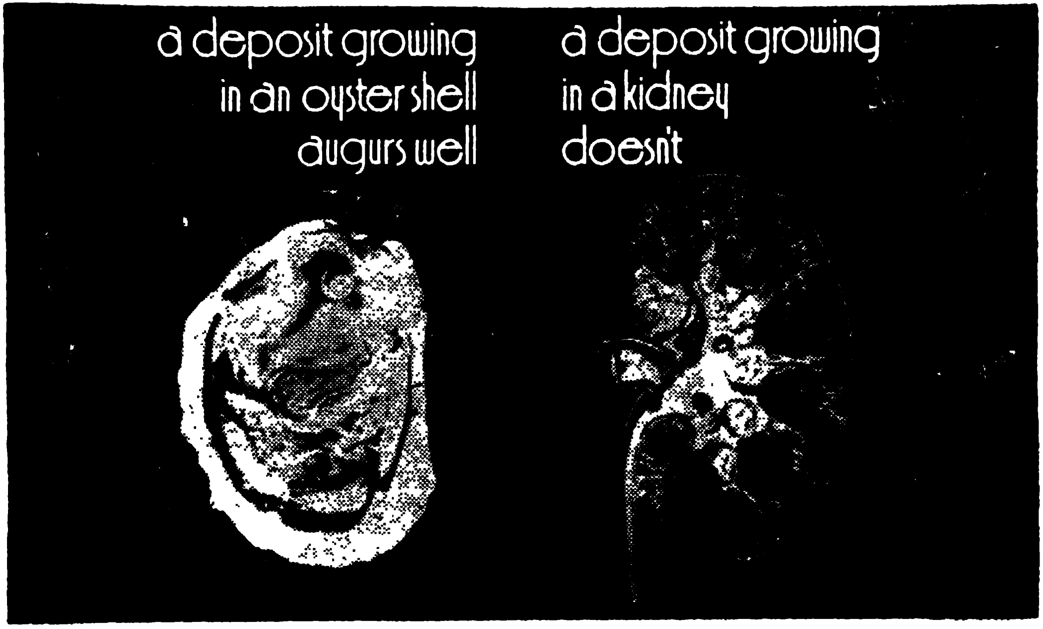

Zyloric is of benefit in the prophylaxis and treatment of calcium renal lithiasis in patients with raised serum or urinary uric acid

"Calcium-containing renal stones may be formed by patients with hyperuricosuria who present no obvious abnormalities of calcium metabolism such as hypercalciuria. These patients were shown to form less stones when their renal excretion of uric acid was lowered by allopurinol (Zyloric)" 1.

Zyloric is also indicated in the treatment of gout and secondary hyperuricaemia and protects from...

- **incapacitating attacks of gouty arthritis**
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- **progressive deposition of urates in the tissues**
- **obstructive nephropathy during chemotherapy or radiotherapy of neoplastic diseases**

Presentation

Each tablet containing 100 mg allopurinol Strips of 10 x 10

1 Pak, C.Y.C. and Arnold, L.H. (1975), *Proc. Soc. Exp. Biol.* 149/4,930.

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"Invasive Intestinal Amebiasis can co-exist with dysenteric colonic disease...

...Failure of symptoms to respond to treatment when amebae have disappeared from stools should arouse strongest suspicion of the presence of other disease."

—A.W. Woodruff—Medicine In Tropics, 1974 pg. 114.

Eradicate the combined invasion by a judicious combination of:

AMICLINE PLUS-AMICLINE

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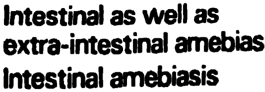
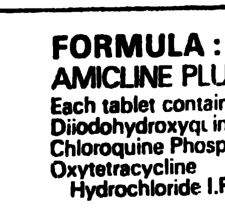


Eradicates amebae in intestinal lumen as well as in the wall.
Eradicates the bacteria responsible for Superadded infection

DIIODOHYDROXYQUINOLINE



Is effective against the amebae & cysts in the intestinal lumen

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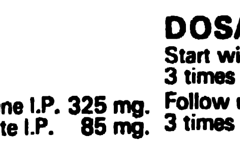
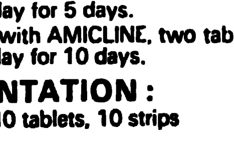


Eliminates amebae at liver and other extra-intestinal sites

AMICLINE PLUS & AMICLINE



Eradicate amebae from all the sites

INDICATIONS:

- Intestinal as well as extra-intestinal amebiasis.
- Intestinal amebiasis superadded with bacillary dysentery.
- In diarrhoeal disorders where amebiasis is suspected but the diagnosis is not established, including those cases where stool examination is not possible.

FORMULA:

AMICLINE PLUS

Each tablet contains:

Diiodohydroxyquinoline I.P.	325 mg.
Chloroquine Phosphate I.P.	85 mg.
Oxytetracycline Hydrochloride I.P.	170 mg.

AMICLINE

Each tablet contains:

Diiodohydroxyquinoline I.P.	325 mg.
Chloroquine Phosphate I.P.	85 mg.

DOSAGE SCHEDULE:

Start with AMICLINE PLUS, 2 tablets, 3 times a day for 5 days.
Follow up with AMICLINE, two tablets, 3 times a day for 10 days.

PRESENTATION:

A strip of 10 tablets, 10 strips in a carton.

Particulars from:
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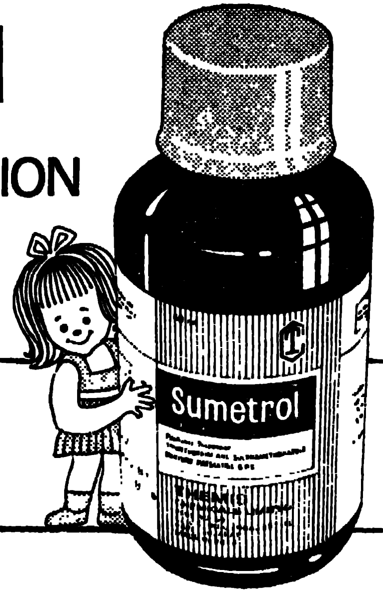
is readily accepted
by children



as it is highly palatable
AND IMPARTS
SWEET MINT TASTE

COMPOSITION:
Each 5 ml. contains:
Trimethoprim B.P. 40 mg.
Sulphamethoxazole B P. 200 mg.

PRESENTATION:
Bottles of 60 ml. suspension

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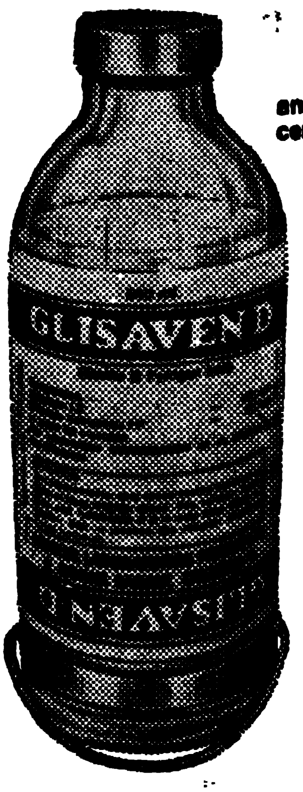

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- GLISAVEN-D not only passes the Blood Brain Barrier easily but also favourably influences cerebral metabolism in ischemic areas.
- GLISAVEN-D is non-toxic and can safely be recommended for patients having dehydration and severe renal damage.
- GLISAVEN-D improves diuresis even in cardio-renal diseases.

(Ref. The Lancet, Saturday, 6th November, 1971 issue)

Composition :—	**Presentation :—**
Glycerine I.P. 10% Dextrose I.P. 5% in water for injection.	540 ml. transfusion bottle.

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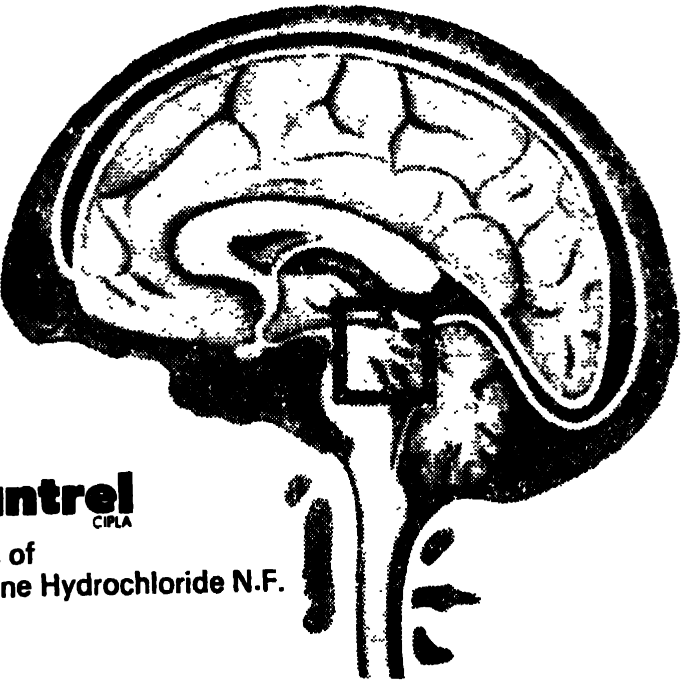
A superior and safer approach in the management of Parkinson's Disease



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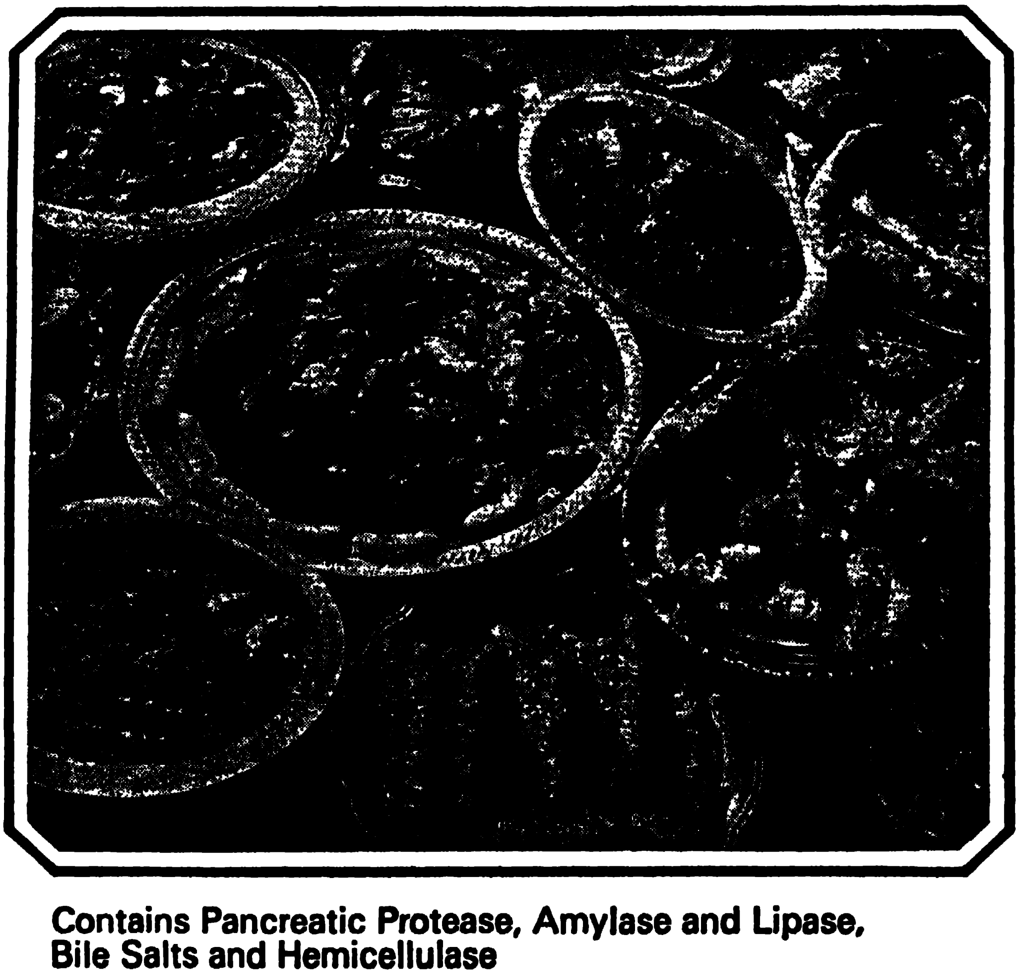

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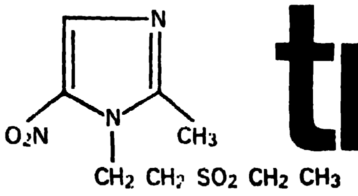

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- Amoebiasis
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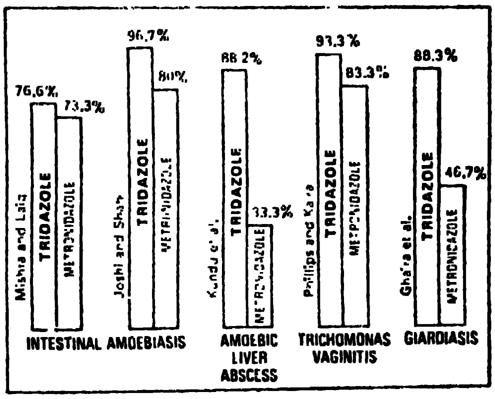

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600 mg. twice a day for 5 days. Treatment may be extended to 10 days in those cases where complete clinical or parasitological cure is not achieved at the end of 5 days.

Amoebic liver abscess:
A single dose of 2 gm. per day for 2 days.

Trichomoniasis:
150 mg. twice a day for 7 days, or 150 mg. thrice a day for 5 days.

Giardiasis:
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PRESENTATION:
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For the symptomatic relief of productive or non-productive cough, complicating allergic, inflammatory and infective disorders of upper and lower respiratory tract.

PRESENTATION: Bottle of 110 ml.

DOSAGE:
2 teaspoonfuls three to four times a day, or as directed by the physician.

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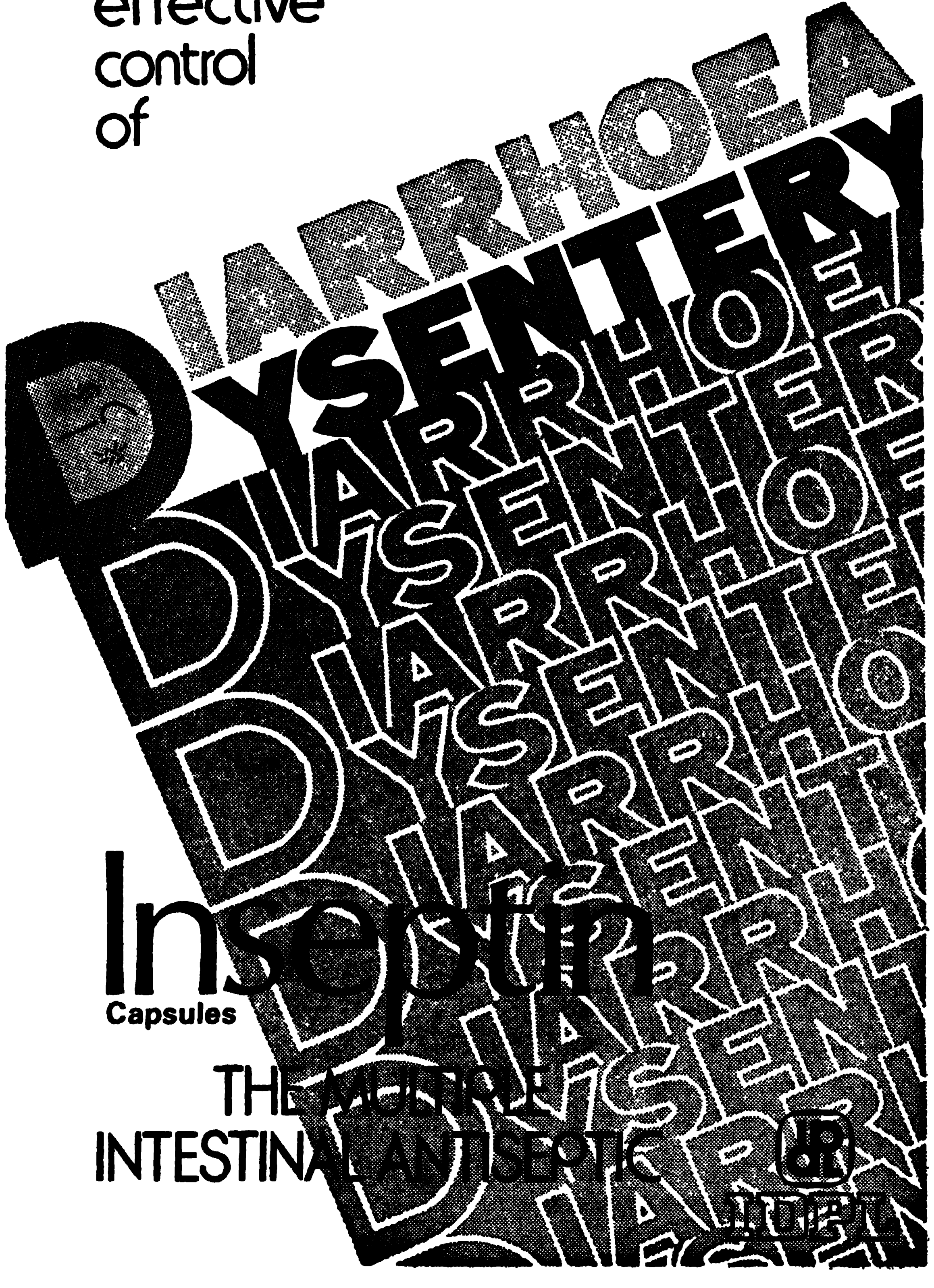

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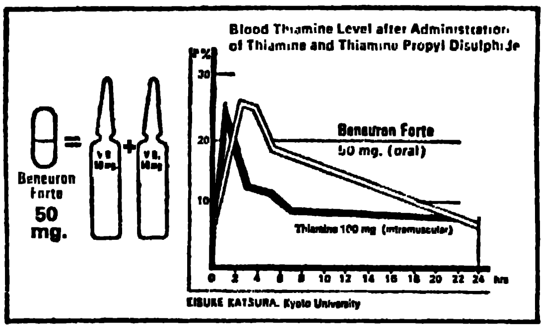

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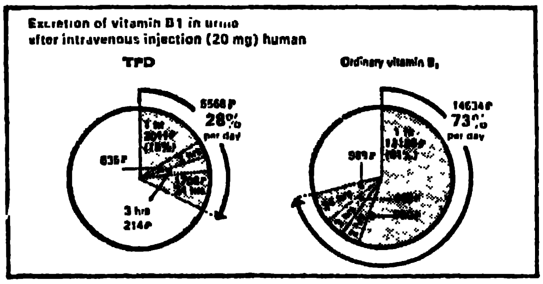

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PRESENTATION:
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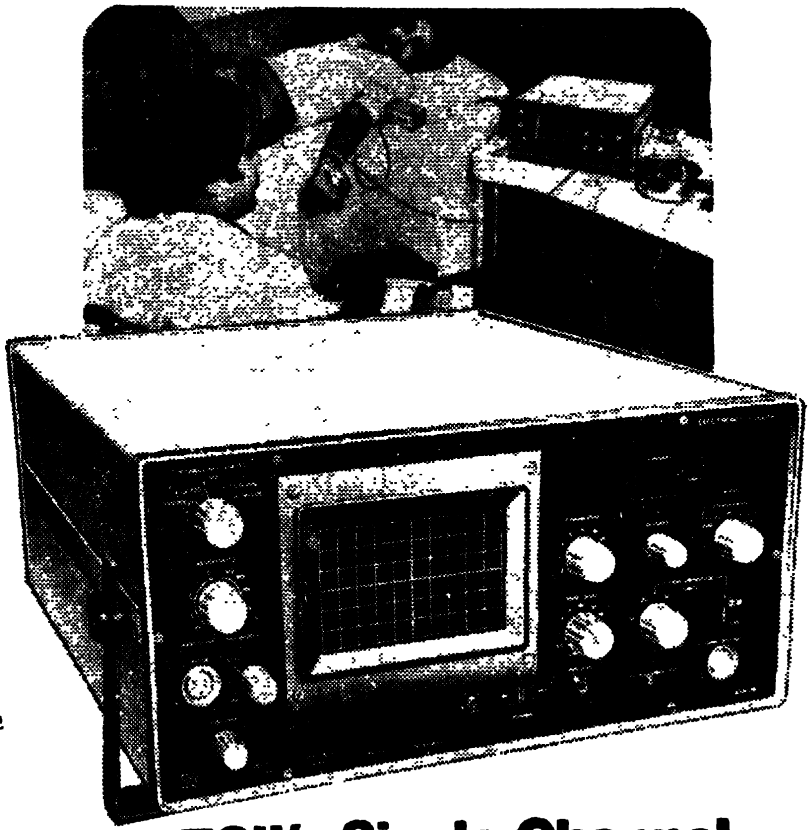

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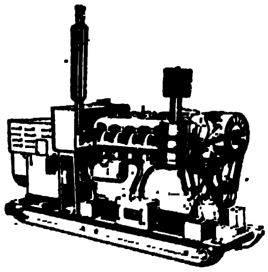

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Each 5 ml of reconstituted syrup contains Amoxycillin Trihydrate B.P 125 mg.

INDICATIONS:
- Urinary tract infections
- Respiratory tract infections
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- Billiary tract infections
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- Intestinal infections
- Preferred to tetracyclines in pregnant women & Infants

DOSAGE:
Mild infections one capsule of 250 mg three times a day.Moderate to severe infections one capsule of 500 mg three times a day.Maintenance dose one capsule of 250 mg three times a day.Children 20—40 mg/kg/day in divided doses every 8 hours.

PRESENTATION:
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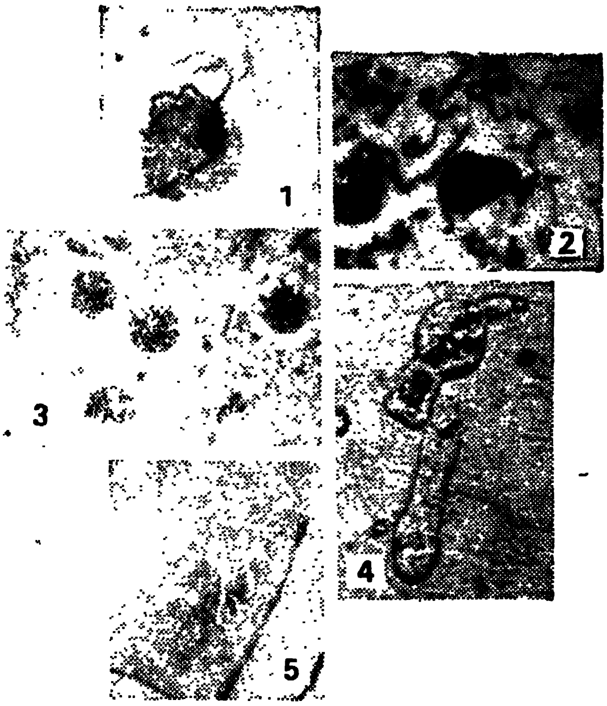

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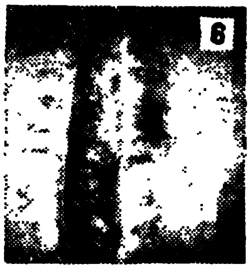
4 Amoebiasis
5 Dracunculiasis

and now



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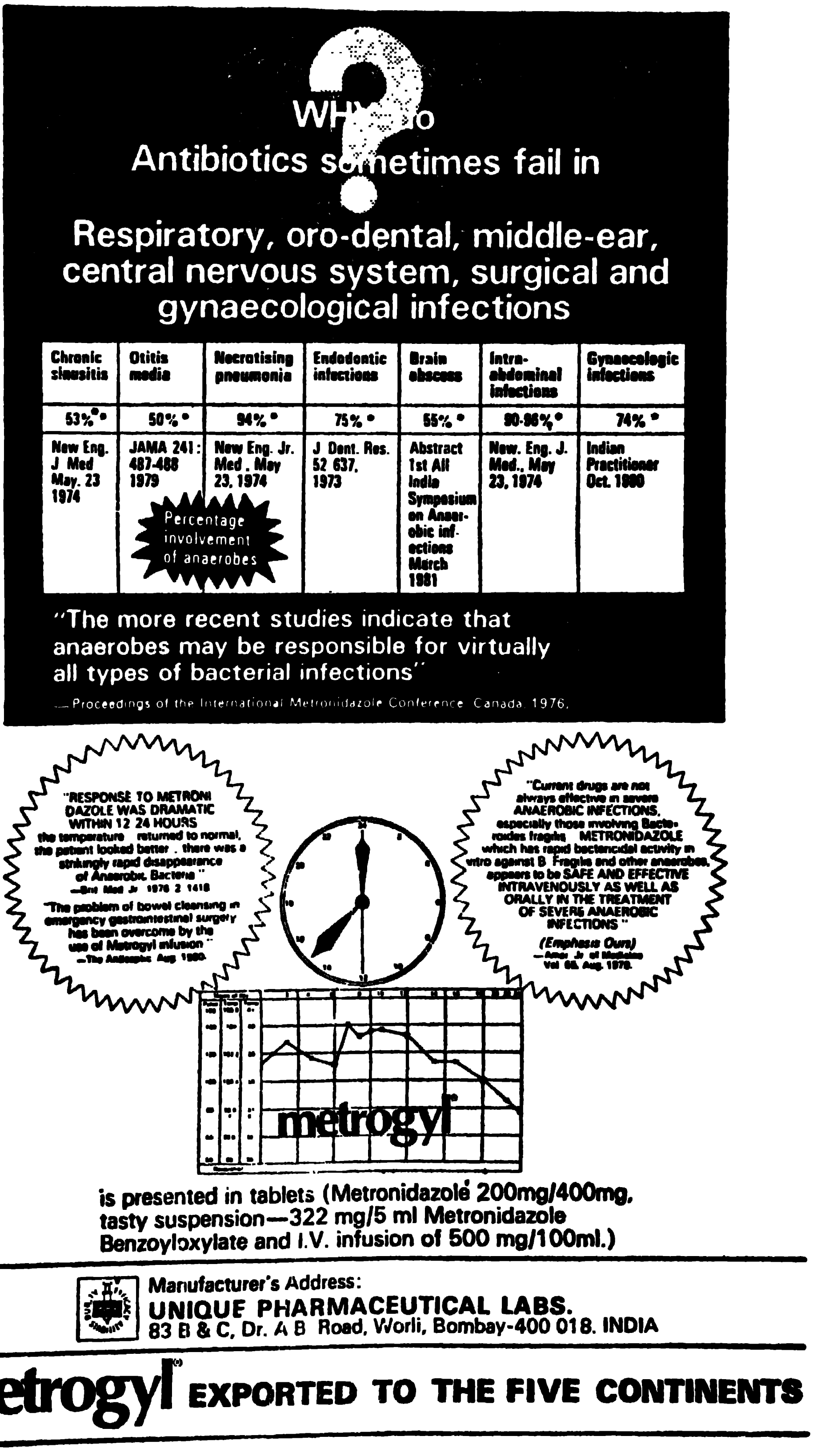

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53%*	50%*	94%*	75%*	55%*	90-96%*	74%*
New Eng. J Med May. 23 1974	JAMA 241: 487-488 1979	New Eng. Jr. Med. May 23, 1974	J Dent. Res. 52 637, 1973	Abstract 1st All India Symposium on Anaerobic infections March 1981	New. Eng. J. Med., May 23, 1974	Indian Practitioner Oct. 1980

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— Proceedings of the International Metronidazole Conference Canada 1976.

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(Emphasis Ours)

—Amer. Jr. of Medicine Vol 65, Aug. 1978.

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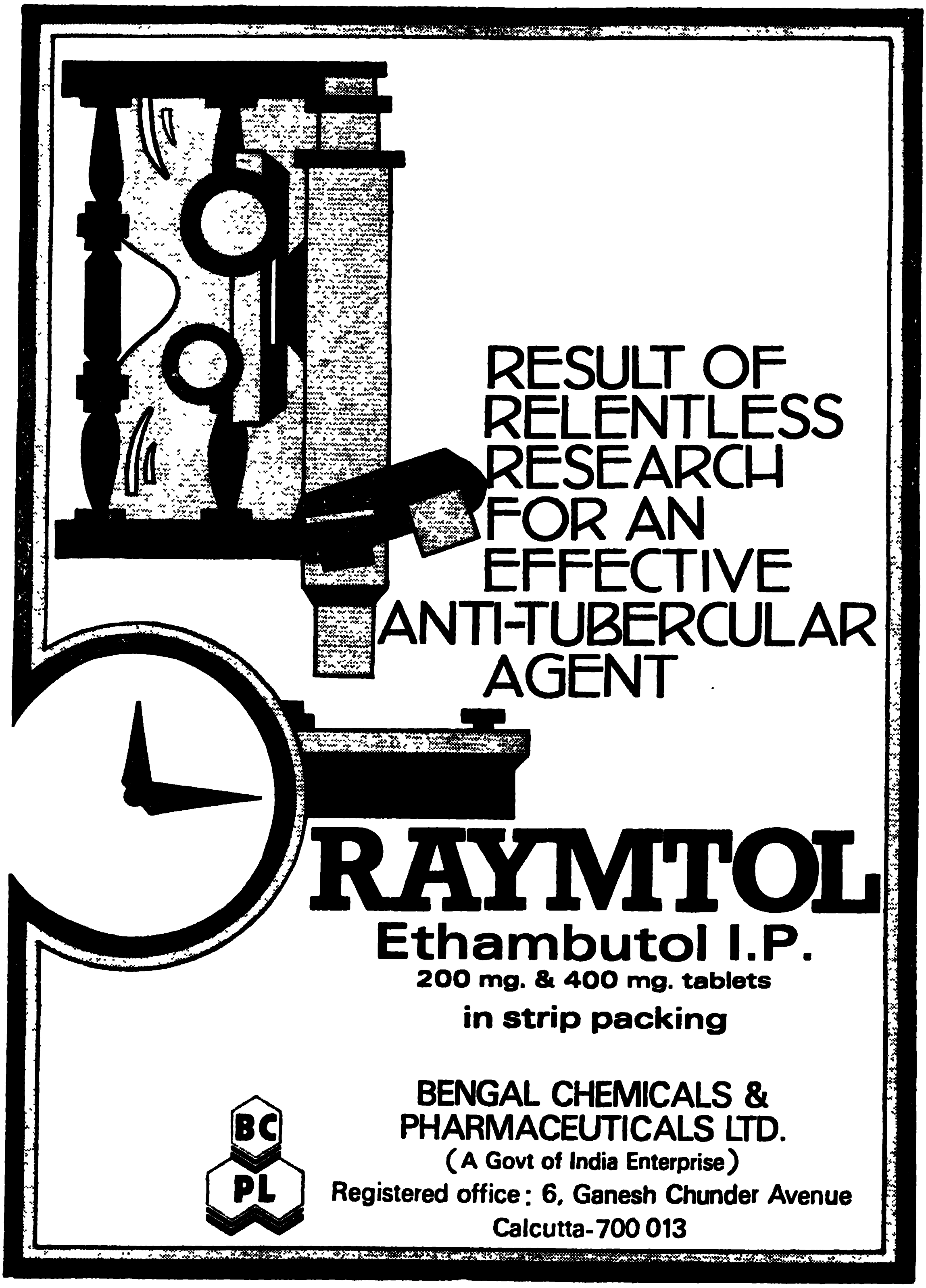

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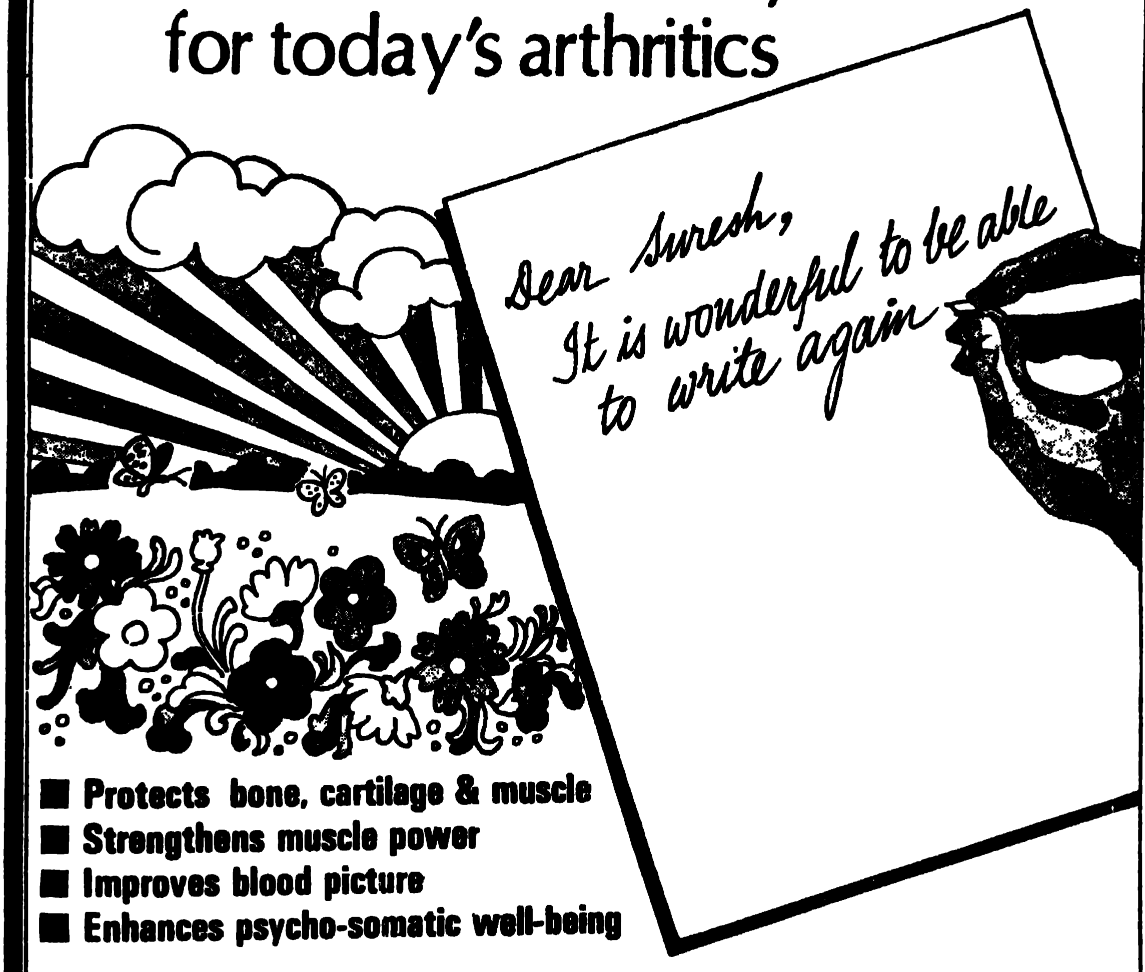
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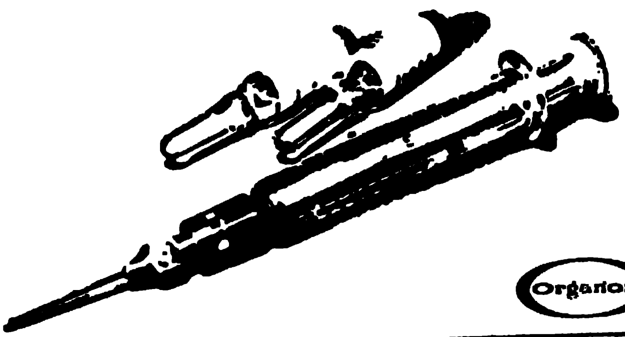

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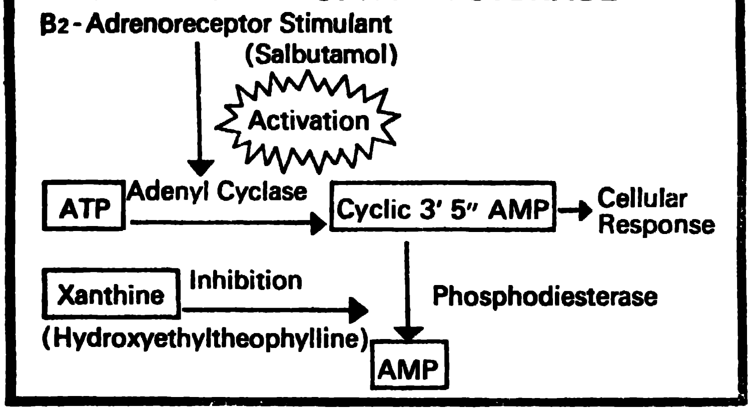

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INDICATIONS:

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PRESENTATION:

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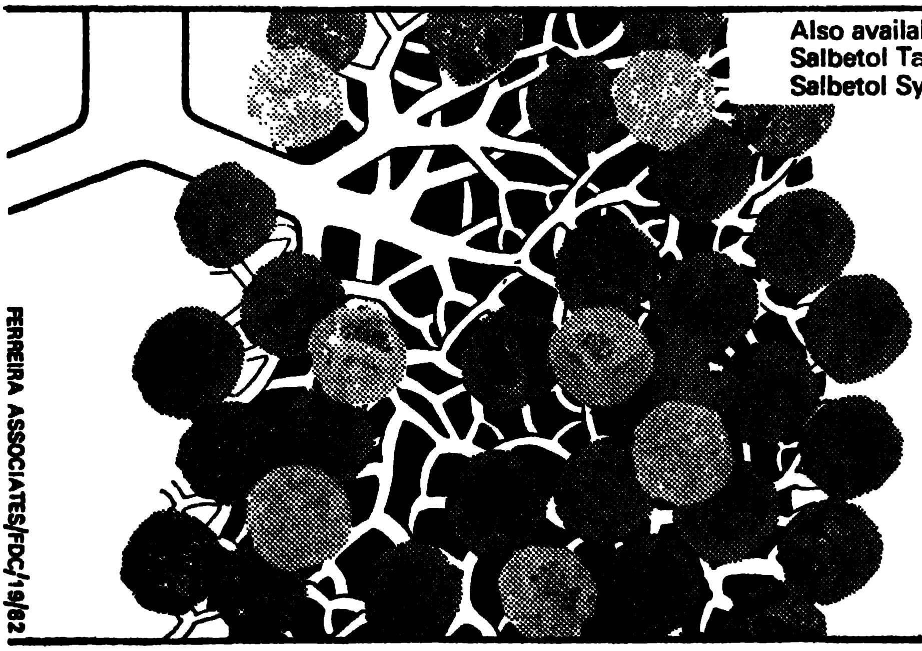

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CONFERENCE NUMBER

Journal of the Indian Medical Association

OLUME 78
UMBERS 5 & 6

PUBLISHED TWICE A MONTH

EDITOR—BHASKAR RAY CHAUDHURI, M.D., F.R.C.P.E., Ph.D.

CALCUTTA
MARCH, 1982

57th All-India Medical Conference :: Nagercoil :: 1981

By

DR. JAYASEELAN MATHIAS
Nagercoil, Tamil Nadu

The 57th All-India Medical Conference was held t Nagercoil, Kanyakumari District, Tamil Nadu from 5-12-1981 to 30-12-1981 hosted by the Kanyakumari ranch. It is perhaps the first time that such a ational convention was held in a semi-urban area

To rise equal to the vast significance and the ital relevance of the Conference, elaborate reparations and herculean efforts had to be made. o me, as the Organising Secretary of the Conference, was a highly exciting experience. The applause that he Conference has won from all quarters, as videnced by the laudatory comments that it ttracted, is indeed a source of pleasure and satis- ction to all of us who worked for its success.

The presence of nearly 1000 eminent doctors rawn from all corners of the country in our place, hich is really India's land's end, lent colour and dig- ity to it, and for about a week it hummed with eaningful activities. The addresses delivered at the onference underlined in unambiguous terms our rofessional rights and responsibilities and also the agnitude of the health problems facing the country. All the sessions were well attended and at the venue of the Conference everything was spick and span. The deep interest evinced by the delegates was indicative of their keen sense of participation in the proceedings.

Socially and intellectually, the Conference was a thrilling and rewarding experience to the participants. It was a happy get-together for doctors where they could exchange pleasantries, make acquaintances and renew contacts. The scholarly papers read by the experts and the masterly and stimulating discussions that followed offered a veritable intellectual feast to the participants and gave them an ample scope for comparison of notes The programme of entertainments provided some welcome diversions. By the time the Conference came to a close, a sense of achievement could be marked on the faces of the delegates.

The eminent doctors of Kanyakumari District, who were on the various committees constituted for the conduct of the Conference, did excellent work. Their sincere help and willing co operation enabled the organisers of the Conference to leave a lasting impact on the minds of the participants and the public. The members of these committees discharged their respective responsibilities with commendable fervour and dedication and they identified themselves with the preparations ignoring their personal discomforts and inconveniences. On the days of the Conference their enthusiasm was at the peak when they could no longer confine themselves to their allotted tasks only but had to attend wherever their service was needed.

The Conference gave us yet another opportunity to attract the attention of the Government as well as that of the enlightened people to our thoughts and our concern for the national health care We have gone one step further in dedicating our services to the nation to reinforce its health care services. The discontent and agonies of the profession along with its hopes, ambitions and aspirations were voiced through the deliberations at the Conference. We have crossed, we may say, one more mile-stone on the long road towards progress.

Welcome Address

By

DR. JAYASEELAN MATHIAS

Organising Secretary

57th All-India Medical Conference, Nagercoil

As a humble representative of the Organising Committee, it is my proud privilege to welcome you to Nagercoil to the 57th All-India Medical Conference.

The Hon'ble Minister for Health of Tamil Nadu, Dr. H. V. Hande, is participating in the Conference. A gem of a gentleman and a saint among politicians, he entertains thoughts noble and sublime, and strains every nerve to translate them into robust action in a bid to spiritualise politics. He brings to bear upon his profession and politics a missionary zeal of high order. An eminent doctor by profession and a sane politician by choice, he has good-will for all and ill-will towards none. It is Tamil Nadu's good fortune that Dr. Hande is its Health Minister. With a thorough knowledge of his department and a burning passion for clean work, he is initiating steps to tone up the health of the State. His presence definitely adds weight to the proceedings. I welcome him affectionately.

We are happy to have in our midst Dr. K. P. Mehrotra, President of the Indian Medical Association for 1980-81. As a doctor, he has carved out for him a niche in the profession. His valuable services to the IMA as President will ever be remembered with gratitude. His rich experience and mellowed wisdom will be a source of inspiration to us. I extend to him a warm welcome.

Dr. A. K. N. Sinha is also here with us. He was President of the IMA for two terms, which is indeed a rare honour. He is at present the President-elect of World Medical Association. A doyen in the profession, he has gained international reputation as a top-ranking physician. As backbone of the IMA he has always been a perennial source of inspiration to all of us. As an effective organiser, he is noted for his go-gettingness. As a senior physician, he is wedded to the profession with a rare zeal and he never brooks ideas of delution of medical standards. As the Governor of Kerala has expressed his inability to be present here today, Dr. A. K. N. Sinha will be inaugurating the Conference. I extend to him a hearty welcome.

Dr. R. N. Chatterjee, the President-elect of the IMA, is here. As a leading surgeon and a master of the intricacies of the profession, he is instilling in our Association his dynamism and zest. I deem it a great honour to work under him as a Vice-President. Under his inspiring presidentship the IMA is looking forward to yet another fruitful years of consolidation and progress. My hearty welcome to him.

The past Presidents of the IMA, who have made signal contribution to the enrichment of the profession and the consolidation of the Association, have assembled here in good strength. Their participation in the proceedings will be a distinct gain to the Conference. To these veterans, who have come from far and near, I extend a cordial welcome.

The members of the Working Committee and the Central Council are gracing the Conference by their benign presence. It is indeed very kind of them. Then, many of the office-bearers of the different branches of IMA from all over the country have come to Nagercoil prompted by a sense of responsibility to place at the disposal of the Conference all their expertise and experience. The strength of the whole Association understandably lies in its units, and as such their suggestions and advice will, I believe, enliven and enrich the Conference. The patrons have also come to bless the Conference. Fountains of fervour, as they are, we need their pats to inspire us 'to strive to seek, to find and not to yield'. Also, the spouses and the near and dear ones of doctors have come to add grace and elegance to the Conference, unmindful of personal inconveniences, incidentally converting Nagercoil into 'a home away from home'. Their pleasing presence lends a welcome domestic touch to the felicity and historicity of the grand occasion. I heartily welcome all these ladies and gentlemen to the Conference.

Once again, I extend a warm and cordial welcome, individually and collectively to all those assembled here for the Conference.

Presidential Address

By

DR. R N CHATTERJEE

Jabalpur

Words fail to express my deep sense of gratitude to the members of the Indian Medical Association for the honour bestowed upon me. When I think of my distinguished predecessors, who once adorned this high office, I get a deep seated fear, because usually this chair was occupied by the doyens of the medical profession like Dr. B. C. Roy, Dr. Jivraj Mehta, Dr. G. V. Deshmukh, Sir Nil Ratan Sircar, Col. Amirchand and others. They had great contributions towards medical education and medical relief. Ladies and Gentlemen, I have no such contribution. I am a simple worker of the IMA. But I shall try to be worthy of the trust reposed on me.

DR. R. N. CHATTERJEE, PRESIDENT OF THE IMA FOR 1981-1982

NATIONAL HEALTH POLICY :

In spite of the repeated requests from the IMA our Government has not come out with a clear National Health policy. IMA wanted that we should have a National Health Scheme somewhat like the National Health Scheme of UK. But because it requires a huge expenditure our Government never looked into it. In England they are spending 36% of the budget on National Health Scheme. In France they are spending 30% and in West Germany 34%. In India our budgetary allotment for Health Services comes only to 3%. This is how we give importance to the health of the people. Even after 34 years when Britishers left this country we find that our politicians, who are guided by the same bureaucratic machinery, care little for the health of the people. In India one life is equivalent to one vote.

The Alma-Ata declaration of 'Health for all by 2000 A.D.' was signed on 12th September 1979 and two years have already passed over, when we do not see any progress towards that end. How we take health seriously can be imagined that in many States including mine there are no Health Ministers of Cabinet rank. The Alma-Ata declaration has defined a few important tasks in achieving this objective. These are (1) Health education. (2) Food supply and nutrition. (3) Water and sanitation. (4) Maternity and child health. (5) Family planning. (6) Immunisation. (7) Communicable disease control and prevention. (8) Basic curative care. (9) Provision of essential drugs.

(1) For health education the ideal means is the School Health Service. Government must appoint doctors who can render health education at the middle or high school stage. All IMA branches should render health education by arranging seminars, public lectures, etc. Along with Health Education sex education is also essential.

(2, 3) For good food supply and nutrition it is not always essential that our economy should improve. There are simple and cheap foods which can give good nutrition. Actually rich people take food harmful for health. Here again health education will be helpful. For good water supply and sanitation Government must take strong measures. 50% diseases can be eradicated by good water supply. In India even the federal capital has not got good water supply, where hundreds die of jaundice every year, what to talk of villages.

(4) For maternity and child welfare all primary and sub-health centres should have maternity wing

and trained *ayas* should be posted in the periphery. There should be proper referral system and ambulance service must be available to take these poor ladies to nearest surgical centres.

FAMILY PLANNING :

(5) India Government officially in 1958 realised the importance of family planning and started a department. India was one of the very few countries, which officially adopted family planning, but I am sorry to say that in 23 years we have made little progress. Our population in 1958 was about 40 crores. Today it has reached nearly 70 crores and by 2000 A.D. we are sure to cross 100 crores mark. As early as 1959 our the then president Dr. H. N. Shivapuri demanded from the Government that IMA should be fully involved with family planning work. But our bureaucrats never listend to it and started their own Family Planning Department and are spending crores of rupees over it. Still we have not reached any tangible results. Then came the emergency and some good work was done but Government agencies became over-enthusiastic and a sort of compulsion was used with the result you all know very well. After the emergency the Janta Government came and since then Family Planning Department is going in a reverse gear. I am glad to note that our Prime Minister has realised the importance of involvement of voluntary organisations in the family planning work and has advised State Governments to do so. Government machinery and IMA should work hand in gloves if we seriously wish to achieve our targets. There are few communities who are not very serious as regards family planning. They would be properly motivated given proper incentives and disincentives and if need be some compulsion should be used. We can't allow the entire country to go down for the sake of a few. Government should involve IMA members fully and IMA members of their own should co-operate with the Government to start the family planning work with full vigour. Many branches are already doing excellent family planning work.

Conditions in China were not better than us up to 1970, but now with proper incentives and disincentives they are reaching their target and if we do not improve, by 2000 A.D. India will become more populous than China. Of course, we shall be able to boast that we are the most populous country in the world.

Every IMA member should do some family planning work. The general practitioners can motivate, distribute contraceptives and pills and surgeons and gynaecologists must organise vasectomy and tubectomy camps. Laparoscopic tubectomy sterilisation has revolutionised the entire family planning programme. It has made tubectomy operation easier and safer than vasectomy and patients can go home after a few hours and from next day they can look after their household work. Government must supply laparoscopes to all the district hospitals as well as to the voluntary bodies like IMA who wish to do laparoscopic camps. Surgeons and gynaecologists must be sent to bigger centres for training in this field. This laparoscope can be taken to the primary health centres and sub-centres so that our population of the rural area gets its full benefit.

The small fee which the surgeons get for these operations should be increased and should be made income-tax free to bring some credibility to the programme. I am sure our IMA members and branches will take up the challenge.

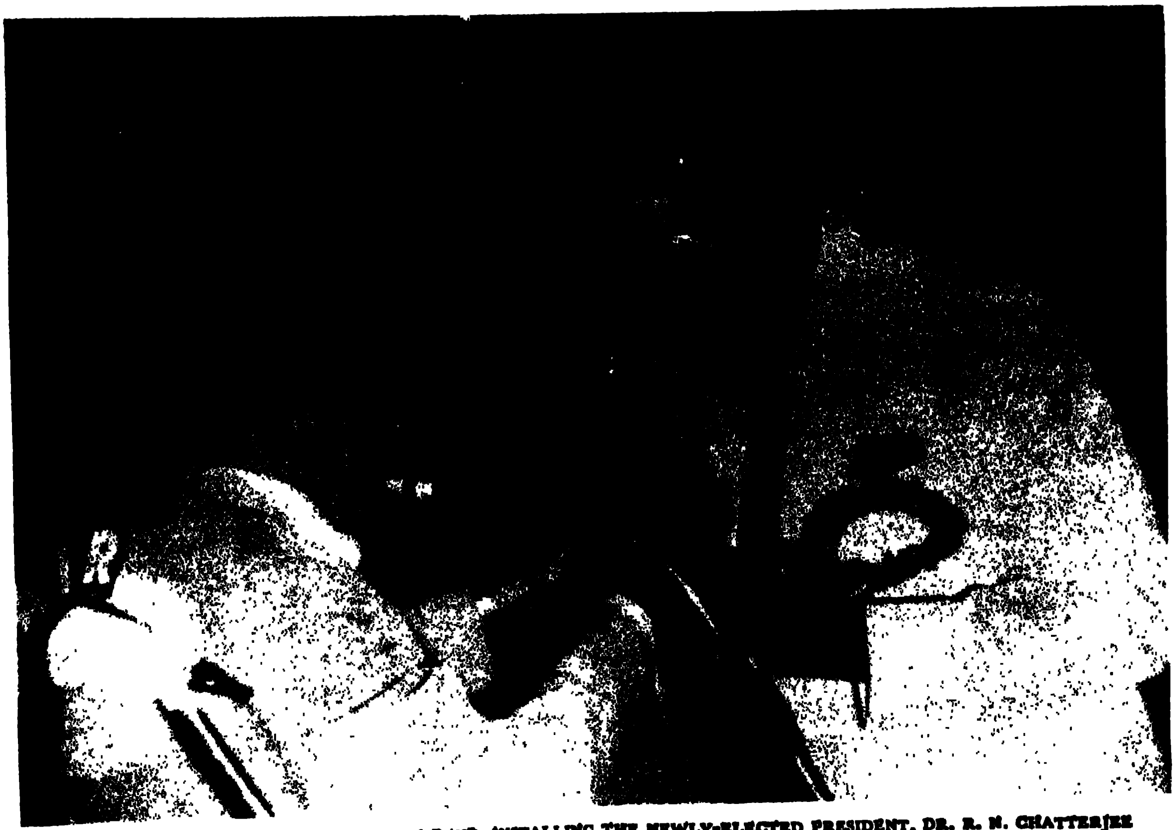
COMMUNICABLE DISEASE CONTROL AND PREVENTION AND IMMUNISATION :

(6, 7) Here IMA can take a very prominent part. Government is doing some thing from the district hospitals and primary health centres. It is the duty of each member to see that all the children under their care are immunised against smallpox, polio, diphtheria, tetanus and whooping cough, etc. For a country like India where 70% of the population are below the poverty line and spread but in remote corners of the country, it is not an easy task. But our para-medical staff should be properly supervised for this gigantic work.

BASIC CURATIVE CARE :

(8) As recommended by Bhore Committee in 1943 primary health and sub-centres have come up and are manned up also but we are far from the target. Rural medical relief is far from satisfactory. We have not been able to utilise the huge medical manpower of this country. With 113 medical colleges producing about 1300 graduates annually, we can hardly utilise half of it—35% in Government service and 15% in private practice. Where there are no suitable jobs in the country and prospects of private practice is also not very lucrative, I do not blame

these young men if they go out of the country. Previovsly our young doctors were going out to England and America. But now as that channel is almost closed they are going to Middle East and African countries. If our Government cannot absorb so many doctors they should bring down the admission in the medical colleges rather than produce more doctors by short medical course in the fond hope that they will go to the villages. No doctor will go to the villages unless there are proper roads, sanitation, water-supply and reasonably good quarters, the primary health centres and sub-centres are well equipped and supply of essential medicine is made adequate. Today practically all the primary health centres are fully manned and the cry of the politicians that the doctors do not want to go to villages is a false one. They object that those who have no influence are condemned for the rural life and those who have got pulls do not go to the interior at all. There should be uniform rules. Unless an assistant surgeon puts 3 years in primary health centre he should not be given promotion. There should be no exception. Even minister's son has to go to the villages. The maximum period of stay in the primary health centre should not exceed five years.



DR. K. P. MEHROTRA, OUTGOING PRESIDENT, INSTALLING THE NEWLY-ELECTED PRESIDENT, DR. R. N. CHATTERJEE

HOSPITALS IN RURAL AREA :

This is the need of the country. Our entire medical relief is urban based. All hospitals are opened in the urban area. All specialists and super specialists are located in the urban area. When the missionaries came they set up hospitals in the interior and no one can deny that they did the greatest service to our people in rural and remote areas. Our Government must take a vow that in future all hospitals would be in the rural areas. In these hospitals all specialists should be available and a small community of doctors will be more happy and useful than a single doctor working in a sub-centre.

PROVISION OF ESSENTIAL DRUGS :

(9) In India multinational drug firms are holding the entire country to ransom and we have no way out. I am happy to note that in a recent seminar at Delhi participated in by WHO, they have recommended the nationalisation of all transnational pharmaceutical firms operating in India. As President of the Indian Medical Association *I request the Government to take immediate steps to nationalise these*

firms who are actually draining the entire economy of India. One of these multinationals put up a capital of 13 crores only and within 3 years have sent 17 crores back to its directors in their mother country. In our country even the antimalaria drugs are in short supply. There are large number of unnecessary and irrational drug formulations that are being manufactured while the production and availability of essential prophylactic, curative and life-saving drugs are being essentially neglected. I fully endorse the Hathi Committee recommendation for a National Drug Control Authority, for planning. implementing and monitoring the policies of Pharmaceutical Industry. Today nearly hundred firms are producing the same drug and each claims that their product is superior. Is this not a national waste ? So again I shall recommend a *rational drug policy, nationalisation of multinationals, stopping mushroom growth of pharmaceutical firms producing the same products and proper control over the quality of drugs and taking severe action on production of spurious drugs. Manufacturers of spurious drugs should be given life-sentence, if not hanged.* To raid a doctor's clinic for spurious drugs is the height of folly, as they do not manufacture drugs. *No sane doctor will use spurious drugs on his patients.*

I am glad that Government of India is going to set up an Indian Medicine and Pharmaceutical Corporation to study the herbs found in the Himalayan region and the forest areas of M.P., etc. Many herbs in India are very useful and after proper study they should be brought in our Indian Pharmacopoeia. Recently in my tour of Bastar area I was informed that in one area cancer is non-existent and there are few herbs which our Adivasis take for family planning and they have good control over the birth-rate. So such drugs should be properly studied and if found suitable may solve the population explosion of India. These herbal medicines will be cheap also and so will suit our Indian conditions.

MEDICAL EDUCATION :

It has become a fashion for our politicians to say that the medical education in our country is not suited for our Indian conditions. Products from these medical colleges do not like to go to villages. This is all absurd. I can say that medical education in India is quite satisfactory. Our standard may have gone down a bit as the overall education has gone down. *But still our medical graduates are one of the best in the world.* This is obvious when you go to the Royal College of England and see that in the list of toppers there are many Indians. Indian doctors have earned great respect in most advanced countries, like USA Canada and England.

No Indian doctor will like to leave his motherland and go out. But he is forced to do so as job opportunities in this country are limited. We have more medical colleges than any other country of the world. But there is no proper planning and so hardly 50% of the graduates are absorbed and rest are unemployed. A few of them start practice where they get stiff competition from quacks who have no ethics and so in this way our qualified doctors are not suited for Indian conditions because they observe some ethics. In course of time he gets frustrated and seeks employment somewhere else. They call this as brain drain. After all he has to survive. There should be proper job opportunities for all the medical graduates. More well equipped primary and sub-health centres should come up. They should be well equipped. Surgeons and gynaecologists should be posted in these primary health centres, where a fully equipped operation theatre should be constructed.

There is absolutely no need for opening short-term courses to produce sub-standard doctors in the fond hope that they will go to the villages. I request the Government to employ our unemployed and under employed doctors rather than opening these sub-standard medical institutions, products from which will strengthen the number of half-baked quacks in the city only, which are in plenty even today. Similarly *colleges on capitation fee should be closed immediately.* Parliament has been informed that there are 14000 unemployed doctors. I think they are much more. Actually in India we are producing more doctors than we need. Instead of short medical courses, we should have nursing schools and they should be part and parcel of all the medical colleges and district hospitals. Along with nurses we require pharmacists, technicians, laboratory assistants. health inspectors, vaccinators and *ayas* ; and separate school for them should be started in the medical colleges and district hospitals.

Reservation for scheduled cast and tribes in the medical colleges is the burning topic of today. Indian Medical Council has rightly allowed 5% concession to these students who have got less opportunities for higher education. But we seriously object that in a few States including mine, students from these castes with 12% marks are admitted whereas students of general category with 52% marks are unable to enter the medical college. This is highly objectionable and in technical education like medical and engineering where we require the best brain of India to come up, this sort of reservation is absolutely unjustified. *Moreover reservation at the postgraduate level must stop in all the medical colleges.* This will not only lower the standard of medical education, which is already having a downward trend but will divide the entire country into categories and one day they will demand a separate State as we are facing the Khalistan problem in Punjab

QUACKERY :

During British regime quackery was practically negligible. But now after 34 years of Independence it has taken very serious proportion. In India every one is independent to do whatever he likes With the result that number of quacks is three or four times more than the number of qualified doctors. There is no proper agency to regulate the practice of medicines in this country. There are two types of quacks, one who have no qualifications and are practising the most complicated modern system of. medicines. The second category is of those who somehow qualify from existent or non-existent ayurvedic and homoeopathic institutions and practise modern medicine. These quacks have no ethics. They do all. unethical practices like self-advertisement and have paid touts and somehow dupe the dumb suffering millions of the country. *They become election agents of our politicians and so no one can take any actian against them.*

It is high time that Government realise the harm being done by these quacks and take serious action against them. Most of the ayurvedic and homoeopathic colleges are mere farce and products coming out of these institutions practise modern medicine. So these institutions should be closed. Government must define that the *medical colleges of modern scientific medicine are only recognised medical institutions.* Ayurvedic and homoeopathic studies should be taken at the postgraduate level only. More research should be encouraged in ayurvedic drugs and study them scientifically and bring them in our Indian pharmacopoeia.

A VIEW OF A SECTION OF THE DELEGATES

LEPROSY AND CANCER CONTROL :

World Health Organisation has advised that by 2000 A.D. leprosy should be eradicated and so we all should take it seriously. In India particularly in the South the problem is gigantic. First an awarenees must be aroused among people that leprosy is like any other disease and is not a sexual disease at all. A leprosy patient should be an object of pity rather than hate. Now we have good drugs for leprosy and there is no reason why we can't eradicate it by 2000 A.D. Rehabilitation centres should be started for these patients who are already physically handicapped and I am glad to note that in the 6th Five-Year Plan efforts are being made for integration of physically handicapped persons with mainstream of the society. More than 12 million leprosy patients in India suffer a worse fate with few programmes for their treatment and rehabilitation.

Similarly Government should take the menace of cancer very seriously, owing to its increasing incidence in the country, With our growing life expectancy and personal and environmental causes the incidence of cancer is increasing. Environmental pollution with industries coming up and diesel smoke is also responsible for this increase.

SMOKING :

Now it has been scientifically established that smoking is more harmful than drinking. So we should ban or prohibit smoking which will be ideal to control cancer of head and neck, which comprise 70% of male cancers. Today our Government has pulled up courage to write a note of warning in each packet of cigarette. And that is also written in English, which hardly 5% of our population can read These warnings should be in vernacular too and also in each packet of *bidis* which are causing more cancer than cigarettes. In America there is a quality control on manufacture of cigarettes. Those with higher nicotine and carcinogen substances are banned in America. But they can be exported and so the American cigarettes, which we smoke are more harmfull Is it not shameful for America to export these cigarettes which are harmful to Americans ? This is a positive proof of how much the advanced countries care for an Indian's life. Now cigarettes with a filter has been proved more carcinogenic than non-filter cigarettes.

Smoking is not only harmful in causation of cancer, but is also a causative factor in heart diseases chronic bronchitis. Buerger's disease, etc. Children of smokers are more prone to get these diseases as they live in smoky rooms. Those workers who work in the smoky room, have there life expectancy reduced to the level of these smokers, who smoke 11 cigarettes per day.

It is usually in schools and colleges that our children learn this bad habit. So I shall request the Government to enforce the following measures : (1) Stop smoking in schools, colleges and hostels. (2) Stop smoking on trains and buses. (3) Stop smoking for those below the age of 21. (4) Disallow smoking in hospitals. I shall request my doctor-friends to 'practise what you preach' and yourselves stop smoking. IMA members and branches can do a lot for prevention of cancer. Each branch can start a cancer detection centre and publish articles and leaflets on early signs of cancer and to improve personal habits for prevention of cancer. Pan and *bidi* and cigarette shops are doing havoc for the increase of cancer incidence. I shall request all those who are smoking in this august audience to stop smoking for a minute in honour of those who have laid down their lives fighting against cancer.

PANEL PRACTITIONERS OF ESI :

These panel practitioners are illegitimate children of our Government. When the Government started this scheme in few States they introduced panel system and in most service system. In panel system employees do get some advantage but panel practitioners are always looked down upon and they are usually denied all the benefits usually given to Government doctors such as pension, earned leave, provident fund benefits, etc. Bureaucrats in the Government are always keen to change the panel system into service system as they think they have less control over the IMPs.

These panel practitioners are the torch-bearers of our National Health Scheme, this the Government and panel practitioners also should realise and on success of this system will depend the future plans of the involvement of the entire population under the panel system.

It is high time that the Government realise the problem facing the panel practitioners, make the system more effective so that poor employees are benefited and gradually abolish service system and introduce the panel system throughout India. In course of time workers in the non-Government and smaller units may also be taken and gradually the entire population. Immediate need of this system is to start few hospitals, appoint specialist services, give adequate supply of medicines and increase the capitation fee.

SERVICE SYSTEM OF ESI :

If panel practice in ESI has few faults, service system which the Government advocates is a national waste. *It is marraige forced on the people who have no love for each other.* It is usually in practise a leave-issuing scheme when the worker demands it as a matter of right, when he is not at all ill. He uses the leave for personal needs, and drugs are either not collected or thrown out. Uncollected drugs is a source of income for the ESI staff. Is it not a national waste ? So I request the Government to stop this and introduce panel system all over India.

IMA ACADEMY OF MEDICAL SPECIALITIES :

For the last few years specialist organisations which were started about a quarter century back have started feeling that in isolation they can not take the organisation very far. IMA always wanted that all these specialist organisations should be under one banner, i.e., IMA, and there should be more collaboration and interchange of ideas. Surgery alone can not progress without the help of medicine, pathology, radiology and anaesthesiology. Unless all these disciplines meet together serious discussion is not possible. So IMA has started this Academy of Medical Specialities and I shall request all the specialists to become its member. They should have State and city chapters and we expect in their scientific discussion and seminars more progress can be achieved than when they meet in isolation. This year during my Presidentship I shall like that all the State chapters come up and city chapters should also come up in all the cities where there is a medical college.

DOCTORS IN SERVICE :

As during British regime 'health' is still been considered as a matter of charity and so health care problems of the people, 70% of whom are below the poverty line, had been dealt with callously and negligently. In India 'health' budget is smallest than in any part of the world. Service conditions of doctors is far from satisfactory. *Transfers and postings are discriminatory and guided by whims and nepotism of bureaucrats and politicians.*

Shortage of personnel (doctors, nurses, para-medical staff and sweepers), growing indiscipline amongst a section of the staff, unusual delay in repairing radiographic and electronic instruments and, last but not the least, acute shortage of drugs make the hospital unworthy of its name, as an institution in modern scientific treatment. The various shortcomings in hospital administration make the poor doctors open to vilification, rowdism and physical violence and sometimes even murder. So the poor doctor who has no protection from the Government bureaucratic machinery is at the mercy of these 'goondas'. I request the Government for proper protection to be given to hospital doctors as given to judges, etc.

Service conditions of Government doctors should improve. Their pay scales should be just like an I.A S. with all facilities, promotion and transfers guided by rules and not by whims. Hospitals should be made autonomous units to improve the working. To prevent politics amongst class III and IV they should also be transferred.

To attract cream of the profession as teachers in the medical colleges, their pay etc., should be such as to attract the best brain in the medical profession. Dean of the medical colleges should be a selection post and must be from clinical subjects who are in touch with the latest scientific progress and who have direct contact with the hospital and latest research. They should be whole-time teachers and should be able to devote in postgraduate teachings and research.

MEDICAL COLLEGE UNDER IMA FOR THE WARDS OF MEMBERS OF IMA :

It may look paradoxical but with so many reservations in so many categories it is sometimes really difficult for deserving boys to get admission at the medical colleges and so, we requested the Government to reserve few seats for the wards of qualified medical men, but that was turned down. A doctor, who has struggled all his life and sets up some practice and earns some goodwill, which is his only capital, loses every thing if his son or daughter cannot get admission in the medical colleges.

It is hightime that IMA starts a medical college under its auspices for the wards of its members. Such a college cannot be on capitation fee. Admission should be by open competition. Well-to-do members

DR. A. K. N. SINHA, PRESIDENT, COMMONWEALTH MEDICAL ASSOCIATION, ADDRESSING THE INAUGURAL SESSION. SEATED (L-R) : DR. K. P. MEHROTRA, IMMEDIATE PAST PRESIDENT, DR. R. N. CHATTERJEE, PRESIDENT, DR. M. G. GARG, HONY. GENERAL SECRETARY, DR. JAYASEELAN MATHIAS, SR. VICE-PRESIDENT, DR. N. K. KHOSLA, HONY. ASST. SECRETARY, AND DR. HARISH GROVER, HONY. JOINT SECRETARY

can donate for such a college. It should be in line as Dr. R. G. Kar and Dr. B. C. Roy started the Carmichael (now R. G. Kar) Medical College in Calcutta where every one worked in an honorary capacity, right from the professor of medicine down to the demonstrator in anatomy. In metropolitan towns like Calcutta and Bombay big private hospitals have come up and they can be utilised as medical college hospitals. I am sure branches of IMA in these metropolitan towns will accept the challenge and start a medical college under the auspices of IMA for the wards of its members. These medical college and hospitals can be utilised for refresher courses and continuing education for the general practitioners.

IMA AND SOCIAL SERVICE :

IMA members individually and in collaboration with Rotary and Lions clubs are doing a lot of special services. But IMA itself has not got the recognition of a service organisation. There are few branches which are doing lot of social service and have set up a good example for others to follow. I shall request all the branches which are nearly 1000 in number to *take up social service compulsorily. Branches can do a lot in family planning, immunisation, blood bank, diagnostic camps, eye camps, cancer detection, health education* and in so many fields. When they work in collaboration with Rotary and Lions it should be well advertised that the camp is in collaboration with IMA. *It is high time we project ourselves as a service organisation in the service of the suffering humanity.* I shall request each and every branch to take up some community service. A fund for this should be created in each branch and a committee should look after it. Here I wish to remind our colleagues the teaching of that great sage who once meditated in this holy land, Swami Vivekanand. Swamiji said, "Whatever we earn is given to us as a trust to give to those who need them most." I am sure our members will come forward and donate for the community service.

PRIVATE MEDICAL PRACTITIONER :

During British regime there was water-tight compartment between Government doctors and private practitioners. But now it is our own Government. Government doctors are working in public sector, private practitioners in private sector. Both are raising the health of nation, which is our Government's prime responsibility. So a private practitioner

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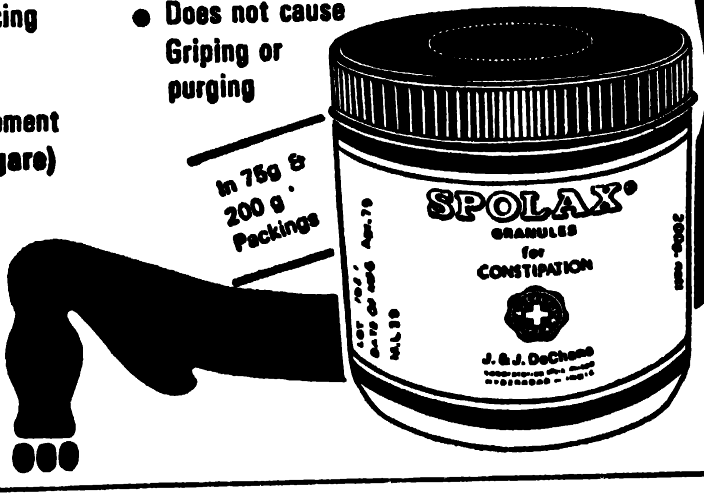

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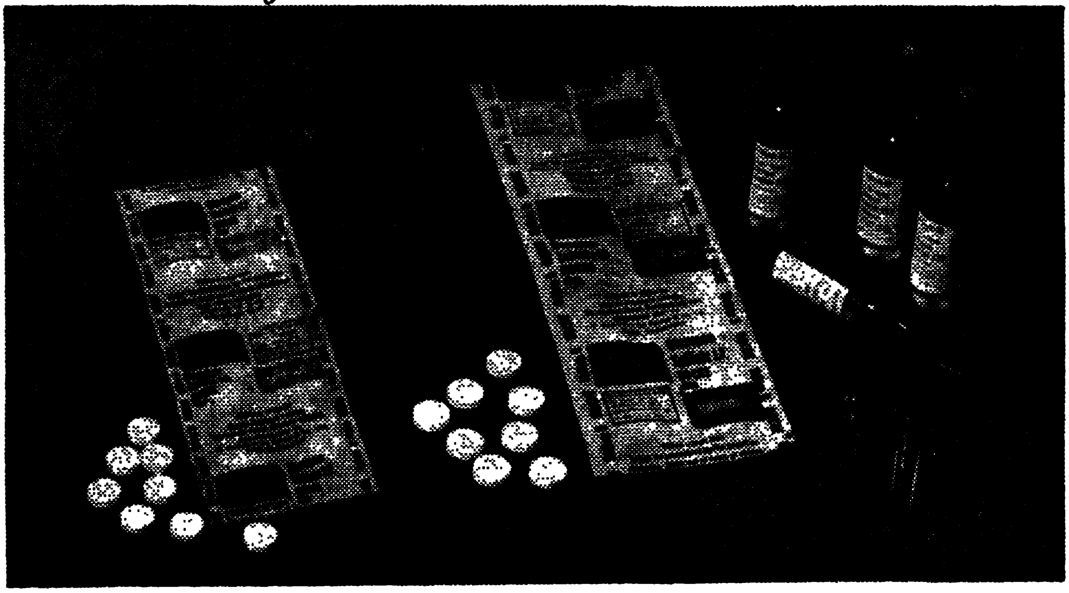

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is also helping the Government as well as people immensely and this compartmentalism should go and private practitioners should be gainfully employed, in family planning or as school health officer or in preventive medicine, etc. Health insurance of the community should be started where those who can not pay the premium, their premium should be paid by the Government. Similarly, if Employees State Insurance Scheme is implemented throughout India on panel system that will give gainful part-time employment to hundreds of doctors. There are only a few Government doctors who are incharge of treatment of Government servants. Why not the Government servants also have their choice of doctors? What is the objection if they get treatment from private practitioners and Government re-imburses their medical treatment charges and operation charges?

(i) *Junior doctors* - Out of 13000 doctors coming out annually about 35% can get employment. The rest starts private practice where there is already overcrowding. Our politicians say, "Why don t they go to villages"? It is less easily said than done. Why our Ministers do not go to villages and stay there for 6 months? Why not the Judges take their Court to the villages and stay there for few months? Why only the poor doctor is advised to go to the villages? In the present socio-economic condition of the society, first there should be communication, then there should be good schools, then only the doctors can move to the interior. Only doctors are not expected to show missionary zeal when rest of the society is happily living in metropolitan towns. Our 'father of the nation' wanted that villages should be developed into a self-supporting economic units, but what do we find after 34 years of independence? The village cobbler has run away because Bata has entered the village. The village blacksmith has also run away as Tata has entered the village. What is the use of sending a doctor to the village when people from there are rushing to the towns? Please do not misunderstand me. I do want that our doctors should go to the interior. But at present to expect them to go to deep interior where there are no roads or schools or society is expecting too much from them. Junior doctors must be given interest-free loan to set up practice in the interior. They should be given part-time jobs in family planning or as school health officer or in preventive medicine and then only you can expect them to move to the interior. Group-practice should be encouraged so that young specialists may set up small hospitals in semi-rural areas or small towns. I am glad to note that Gujarat State Financial Corporation has agreed to advance loan to doctors at a reduced rate of interest for opening dispensaries, clinics, nursing homes, etc. I am sure other States will follow suit. Ambulance service or jeep service also can be provided by the Government and these young doctors can be partly employed to go to the deep interior. At present in private practice he is sandwitched between a quack and a full time Government doctor who is at a much advantageous position to do private practice and so a junior doctor gets frustrated.

(ii) *Continuing traning of a general medical practitioner*—Medical science is advancing by leaps and bounds. To keep pace with all the recent advances is a difficult job. Here the Government should see that there is scope for continuing education for a general medical practitioner. Government themselves should start refresher courses in medical colleges and big district hospitals for general practitioners. They should give sumptuous grant to IMA to start refresher courses. All the doctors attending the course should be given T.A. and D.A. and something extra for their loss of private practice. Health of the nation can only improve, when our doctors are uptodate, so that they can render best possible service to the community. Our IMA College of General Practitioners is doing a good job and has started a correspondence course also. Our fellowship examination is also becoming popular. It is high time that the Indian Medical Council gives the College recognition.

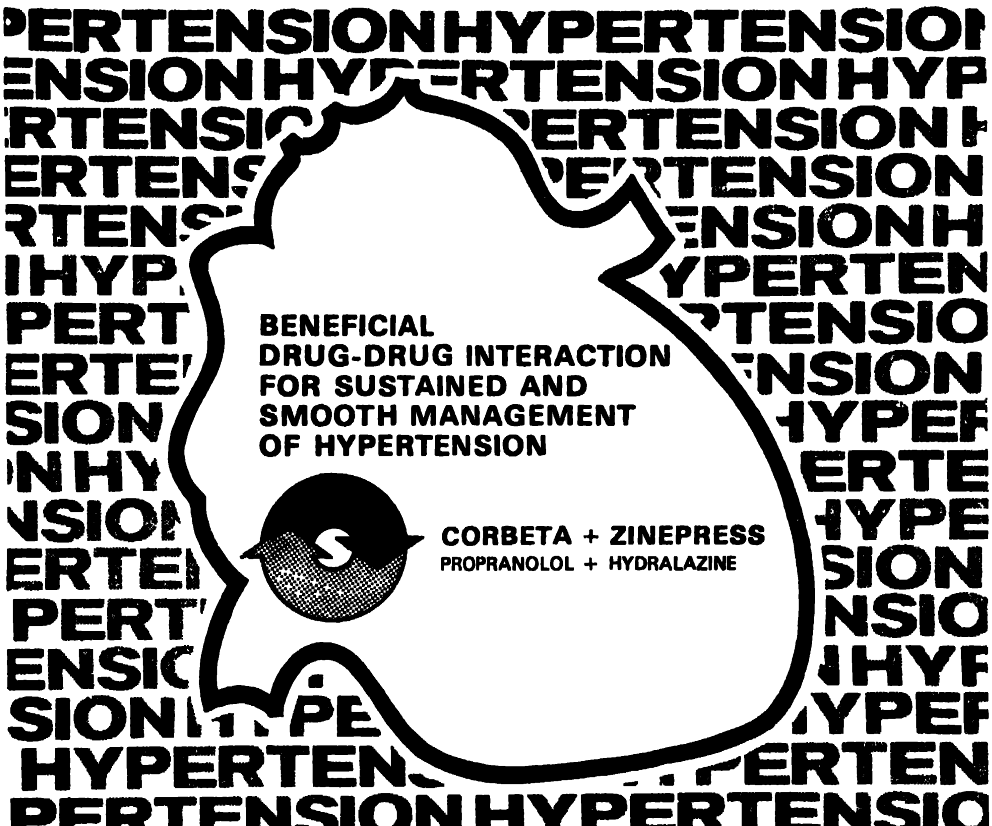
(iii) *Status of a general medical practitioner*—What a general medical practitioner lacks most is a social status. He is giving the best service to the suffering humanity. But still his social status is not that what is ought to be. For this general practice must be recognised as a speciality. In England after the introduction of National Health Scheme, general practice has been recognised as a speciality which has given a status to the family physicians. Our medical colleges should also encourage students to become general practitioners or specialists in general practice. Most of them opt out for some major or minor speciality and so they are lost for the general practice. There should be chairs in every medical college for general practice or family practice. In England they have started a Royal College of General Practitioners exactly like Royal College of Physicians or Surgeons, which is conducting postgraduate examinations in general practice. In India National Board of Examination has started an examination in general practice but it has not become popular as pre-examination courses have not started anywhere, under any university. Here our universities also can start degree or diploma courses in general practice. In the western world the trend is that the medical students should be sent to the private practitioners for training. This is a very healthy sign. In medical colleges they become used to sophisticated instruments, etc. When they go to a private practitioner, they will know, how with the help of few instruments 90% of the disease can be diagnosed. He will develop some love for general practice and try to become a general practitioner. According to WHO we require 90% general practitioners and only 10% of specialist including 1% super-specialists. But the present trend in medical colleges is that every one wants to become a specialist. Probably they want to emulate their teachers and that is very natural. Philosophy of institutional life and life in private practice are poles apart. So in final year for 1½ months they should be posted with a private medical practitioner. During internship also as they are posted for a month in primary health centre, they should be posted with a private practitioner. The aim of the medical college should be to produce family doctors of specialists in general practice and training in private practice is a must for all those who wish to specialise in general practice. Unless we produce doctors who fit in well with the needs of the society, there will be a cry from the lay public or the politicians to produce unqualified men with half-baked medical training to make a new pattern for medical relief.

(iv) *Social security*—At present there is no social security for a private medical practitioner. He spends his entire life fighting diseases and sometimes succumbs to it. Professional people are very liable to get heart attacks and among them a busy doctor is very prone to get it. So a group insurance scheme for all the private practitioners should be started where in case of a major illness some loan can be given and in case of death a lump sum is given to the family. I have seen quite a number of leading practitioners of their time dying as a pauper. Moreover Government should arrange for an old-age pension for these doctors who have risked their life for the cause of suffering humanity.

DR. H. V. HANDE, HEALTH MINISTER OF TAMIL NADU, INAUGURATING THE SCIENTIFIC SESSION. *Seated from left*—DR. R. N. CHATTERJEE, PRESIDENT AND DR. JAYASEELAN MATHIAS, ORGANISING SECRETARY, 57th ALL-INDIA MEDICAL CONFERENCE

(v) *Private practice*—Private practice is probably as old as humanity. But now in the present set up in a socialistic pattern of society, it requires a rethinking. In private practice usually attention is paid to the patient not on the seriousness of his illness, but on his capacity to pay. So in communist countries private practice is completety banned. Progressive countries have adopted some sort of National Health Scheme where private practice even by private practitioners is controlled. *No one should be allowed to exploit the human misery.* If some one falls ill it is not his fault. Government must arrange free treatment for the entire population of the country irrespective of his capacity to pay. In the first phase the private practice of Government doctors in big cities should be stopped. In the second phase private practice in the periphery (primary health centres) should be stopped when private practitioners are available there. In the third phase the private practice of private practitioners should be controlled and regularised.

(vi) *Honoraries in the hospitals*—Till such time that the National Health Service is introduced and in the present set-up honorary posts should be created in medical colleges, district hospitals and even in tahsil hospitals and primary health centres. Many junior specialists will like to get appointed as



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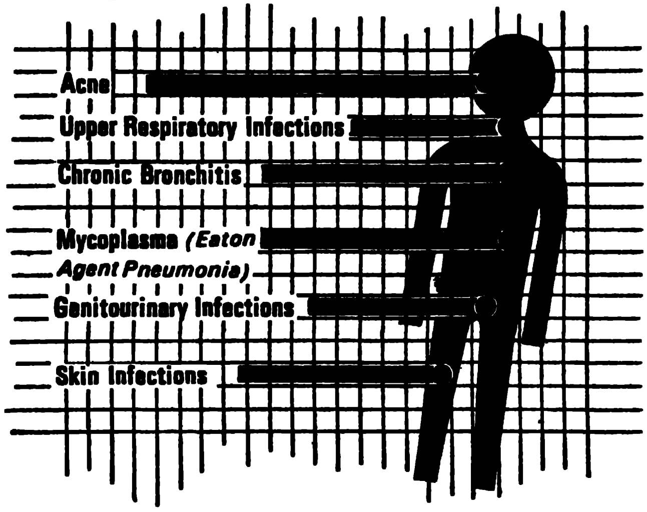
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honoraries where they will get a lot of experience. There are many brilliant people who after F.R.C.S. or M.S. have taken specialised training in neurosurgery or heart surgery, etc. If they can be appointed as honoraries in medical college hospitals then it will be a boon to the suffering humanity. Suitable honorarium as recommended by IMA must be paid to them and finally when National Health Service comes, they can be easily absorbed.

CONCLUSION :

Ladies and Gentlemen, I thank you for your patient hearing. I have a word for my doctor friends. In spite of the fact that our social structure is going down, we the qualified medical people must observe high standard of ethical code of conduct. Our clinics and hospitals are our temples. Our behaviour should be such, so that the respect and prestige which we enjoy today continues. Our Indian society has given a very high status to the doctors. Let us all endeavour so that we may prove worthy of the honour reposed on us.

Finally, I request the Government to take the recommendation of IMA seriously. During British regime IMA was looked down upon by our British masters. But after 34 years of independence the situation has not improved. Our national Government still has no faith in IMA and never takes its recommendations seriously. In UK and USA and Canada, these National Medical Associations have got status which we never enjoy. There no one can practise unless he is a member of these national medical associations. But in India, every one is free to practise. So, while concluding I shall request the Government to give us status which the national medical associations enjoy in the developed countries and I, on behalf of the IMA promise wholehearted co operation by our members and branches in all the activities of the Government aimed at improving the health of the nation. *Jai Hind, Jai IMA.*

How to Kill an Organisation

- Don't come to meeting.
- When you do come, come late.
- If you do attend a meeting, *find fault* with the officers and other members.
- *Never* accept any committee appointment, as it is easier to criticise than to do things.
- However, *get sore* if you are not appointed on some committee ; but if you are, *do not* attend committee meeting.
- If asked by the Chairman to give your opinion about some important matter, tell him you have nothing to say. After the meeting, tell everybody how things *ought* to be done.
- *Do absolutely nothing*, but when other members willingly and unselfishly use their ability to help matters along, *howl* that the organisation is run by *a clique*.
- When a lunch or dinner is arranged, tell everyone money is being *wasted*.
- When no lunches or dinners are given, say the institution is *dead*.
- Don't ask for a banquet ticket till all are sold.
- Then, swear you were *cheated* out of yours.
- If you do get a ticket, *don't* pay for it.
- If asked to sit at the Chief Guest's table, modestly *refuse*. If not asked, *resign* from the Association.
- Hold back your dues as long as possible, or *don't pay* at all.
- Keep your eyes open for something wrong, and when you find it, *resign*.
- At every opportunity, *threaten to resign*, and then get your friends also to threaten to resign.
- When you attend a meeting, vote to do something, then go home and do the *opposite*.
- Agree to everything said *at the meeting*, and then disagree with it *outside*.
- Always delay replying communications from the Association, or better still, *don't answer at all*.
- And last but not the least, *don't actually resign*, otherwise you will lose the opportunity to kill the Association.

—*(Reproduced from the Souvenir Published on the occasion of 57th All-India Medical Conference, Nagercoil, 1981)*

Resolutions Passed at the Conference

The following resolutions were passed at the 57th All-India Medical Conference held at Nagercoil on December 25-30, 1981

(1) Whereas it is expeditious to plan for meeting the challenge of providing "Health for all by 2000 A.D.", be it resolved that a planned strategy be evolved to integrate voluntary, private and public effort to provide adequate health care for all citizens. This Conference urges upon the Gevernment to utilise the co-operation extended by Indian Medical Association.

(2) Whereas it is essential to improve the quality of delivery of health care, this Conference urges upon the Government to desist from starting Short-Term Medical Courses in view of the adequate number of qualified medical graduates available and the growing hands in underemployment and unemployment.

(3) Adulteration of food being one of the important causes of malnutrition and ill health, the 57th All-India Medical Conference views with great concern the large-scale prevalent practices of food adulteration and urges upon State and Central Governments to adopt more stringent measure to check the growing menace and thereby improve the health status of the community.

(4) Whereas the 57th All-India Medical Conference notes the recent move of the Government to abolish the Sales Tax on drugs and therapeutic agents, it views with concern the move for resorting to alternate taxation. It urges upon the Government to abolish all the taxes in order to bring about adequate reduction in prices, particularly, of essential and life-saving drugs.

(5) Whereas it is desired that quality drugs and therapeutic agents are available to all people within their ability to pay, the 57th All-India Medical Conference urges upon the Government of India to enunciate a National Drug Policy. It further urges upon the Government to abolish all taxes and make suitable arrangements to provide the industry all inputs so as to pass these benefits on to the community.

(6) Whereas to improve the quality and standard of health care it is essential that the members of the profession, both in Government service and private practice, be kept up-dated and conversant with recent advances in various disciplines of medicine, be it resolved that this Conference urges upon the Government to allocate adequate funds for the outlay on health plan. It further urges upon the Government to utilise the expertise and the infrastructure developed by Indian Medical Association for over two decades.

(7) Whereas there is increasing tendency towards assaults, insults, harassment and physical torture to the members of the medical profession this 57th All-India Medical Conference urges upon the Government to take suitable steps to give protection to the members of the profession in the service of the nation and the humanity.

SOME OF THE OFFICE-BEARERS OF IMA : FROM *L* TO *R*—DR. BHASKAR RAY CHAUDHURI, DR. N. K. VERMA, DR. SUKOMAL SEN, DR. K. P. MEHROTRA, DR. M. G. GARG, DR. S. P. AGGARWAL AND DR. O. P. KAPUR

Office-Bearers of the IMA Elected for the Year 1981-82

(A) Headquarters

IMA House, Indraprastha Marg, New Delhi-110 002

President : Dr. R. N. Chatterjee (Jabalpur).

Immediate Past President : Dr. K. P. Mehrotra (Kanpur).

Sr. Vice-President : Dr. Jayaseelan Mathias (Nagercoil).

Vice-Presidents : 1) Dr. R. Ananthanarayanan (Trivandrum) and 2) Dr. N. K. Misra (Patna).

Hony. General Secretary : Dr. M. G. Garg (New Delhi).

Hony. Joint Secretaries : 1) Dr. S. P. Aggarwal (New Delhi), 2) Dr. Harish Grover (New Delhi) and 3) Dr. Dilip Kumar Roy (Calcutta).

Hony. Treasurer : Dr. O. P. Kapur (New Delhi).

Hony. Asstt. Secretaries : 1) Dr. N. K. Khosla (New Delhi), 2) Dr. Dharam Prakash (Delhi), 3) Dr. J. B. Sen (Jabalpur) and 4) Dr. O. P. Sharma (Chandigarh).

Hony. Legal Adviser : Shri K. L. Arora, 64, Lawyers Chamber, Supreme Court Buildings, New Delhi-110 001.

Hony. Auditors : M/s. P. K. Khanna & Co., Chartered Accountants, 8/3, Asaf Ali Road, New Delhi-110 002.

(B) IMA College of General Practitioners

IMA House, Indraprastha Marg, New Delhi-110 002

Dean of Studies : Dr. P. C. Bhatla (Delhi).

Hony. Secretary : Dr. P. K. Banerjee (New Delhi).

Hony. Joint Secretaries : 1) Dr. Jagdish C. Sobti (New Delhi) and 2) Dr. Vidya Ratan (New Delhi).

Hony. Treasurer : Dr. O. P. Kapur (New Delhi).

(C) Journal of the Indian Medical Association

IMA House, 53 Creek Row, Calcutta-700 014

Hony. Editor : Dr. Bhaskar Ray Chaudhuri (Calcutta).

Hony. Associate Editors : Dr. Rajib Bindu Chatterjee (Calcutta) and 2) Dr. Gouri Pada Dutta (Calcutta).

Hony. Secretary : Dr. P. K. Choudhuri (Calcutta).

Members of the Journal Committee : 1) Dr. Dipak Banerjee (Calcutta). 2) Dr. A. K. Chanda (Calcutta), 3) Dr. B. C. Lahiri (Calcutta), 4) Dr. Nishith Kumar Ghosh (Calcutta) and 5) Dr. Ranabir Mukherjee (Calcutta).

Hony. Legal Adviser : Shri R. K. Deb, Solicitor & Notary Public, 6, Old Post Office Street, Calcutta-700 001.

Hony. Auditors : M/s. G. Basu & Co., Chartered Accountants, Basu House, 3, Chowringhee Approach, Calcutta-700 013.

(D) "Your Health"

IMA House, 53, Creek Row, Calcutta-700 014

Hony. Editor : Dr. Harisadhan Dutta (Calcutta).

Hony. Associate Editors : 1) Dr. Nishit Mitra (Calcutta) and 2) Dr. Prabuddha Kumar Ghosh (Chandannagar).

Hony. Secretary : Dr. P. K. Choudhuri (Calcutta).

Members of "Your Health" Committee : 1) Dr. Abhijit Dutta (Calcutta), 2) Dr. Sudhir Dey (Howrah), 3) Dr. Subodh Mukhopadhyay (Burdwan), 4) Dr. Manindra Chandra Banerjee (Midnapore) and 5) Dr. Balai Das (Jadavpur).

Hony. Auditors : M/s. G. Basu & Co., Chartered Accountants, Basu House, 3, Chowringhee Approach, Calcutta-700 013.

(E) "Apka Swasthya"

C-7/31, Chetganj, Varanashi-1 (U.P.).

Hony. Editor : Dr. G. D. Agrawal (Varanasi).

Hony. Associate Editors : 1) Dr. M. R. Jhanwar (Varanasi) and 2) Dr. Prabhakar Shukla (Varanasi).

Hony. Secretary : Dr. M. M. Lal (Varanasi).

Members of "Apka Swasthya" Committee : 1) Dr. (Major) A. L. Yadava (Varanasi), 2) Dr. N. L. Agrawal (Varanasi), 3) Dr. L. R. Mehta (Varanasi), 4) Dr. D. Mazumdar (Varanasi) and 5) Dr. S. P. Gupta (Varanasi).

Hony. Auditors : M/s. M. D. & Co. Gopal Mandir Lane, Varanasi.

Annual Report (Brief Excerpts) of the Indian Medical Association

For the Year Ended September 30, 1981

We have continued making our efforts to render membership service to the members and pursuing the decisions of the Central Council as well as putting our viewpoints on various problems concerning health care delivery to the people and before the authorities concerned. Several important matters have been in the lime-light namely—issue of starting of Short-Term Medical Courses in different parts of the country, opening of new medical colleges on the basis of the capitation fee in the State of Karnataka and reservation of seats in the Postgraduate Courses in the medical colleges in the country. There have been a few strikes by different sections of the service doctors at various places. The problems of Insurance Medical Practitioners under the Employees State Insurance Scheme were also pursued vigorously. The problem of assaults on doctors was also highlighted and the Association presented a memorandum on the subject.

It is a sad story that our demand for a National Health Policy has still not been taken care of, although as a nation, India is committed to provide health care facilities for all by the year 2000. Due to the reasons best known to the powers that be, a clear-cut thinking on this aspect has not yet emerged. However, we are given to understand that the Government wants all the various systems in the country to thrive and the people should be able to utilise any system which they choose.

A deputation of the Indian Medical Association headed by the President along with the Chairman of the Standing Committee on Actions waited upon the Prime Minister of India on August 18, 1981. During the meeting, the various problems stated above were put across to the Prime Minister and the Memorandum was given to her. The deputation was given a patient hearing and we have yet to observe any follow-up action.

Karnataka State Branch of the IMA made a vigorous agitation on the issue of Capitation Fees Medical Colleges and Government of Karnataka was forced to appoint a Committee to look into the matter. The President, IMA Karnataka State Branch, was on this Committee and the Association has not yet received the report officially.

SOME IMPORTANT ACTIVITIES

1. 56th All-India Medical Conference was held at Cuttack on December 28-30, 1980. It was well attended. The Conference was inaugurated by Shri C.M. Poonacha, Governor of Orissa.
2. 12th Mid-Year Academic Seminar on 'Recent Advances in Diagnosis and Therapy' was organised by IMA College of General Practitioners at New Delhi on August 16-18, 1981. The Seminar was inaugurated by Dr. I.D. Bajaj, Director General of Health Services.
3. IMA Branches all over the country continued to organise community welfare activities by way of disease detection camps, eye camps, medical check-ups, health exhibitions and family welfare planning programmes which were given publicity through the *IMA News*.

ORGANISATION

1. *Branches*

18 State Branches and 2 Territorial Branches continued to function during the year under report. The number of Local Branches as on September 30, 1981 stood at 941 including 16 Direct Branches attached to the Headquarters Office. During the year, 60 Local Branches were formed and 42 Branches were suspended. 23 Branches were revived and 34 Branches were declared defunct, as per recommendations of the various State Branches.

The matter of Delhi Medical Association is still pending in the High Court at Delhi. Delhi Medical Association wanted to hold fresh elections which have been stayed by Hon'ble Court on an application by a member of the Delhi Medical Association. Cases are being pursued and we hope that some decision will emerge in due course of time. 13 Local Branches are functioning in the Union Territory of Delhi. These Branches have formed a Co-ordination Committee which is guiding their activities under overall supervision of the Headquarters Office. They organised a Joint Convention of the Local Branches on November 28-29, 1980. A brief resume of activities of the Co-ordination Committee has been circulated.

The membership under these Branches continues to improve. It has grown to 700 as against 500 on 30-9-1980.

2. *Membership of IMA*

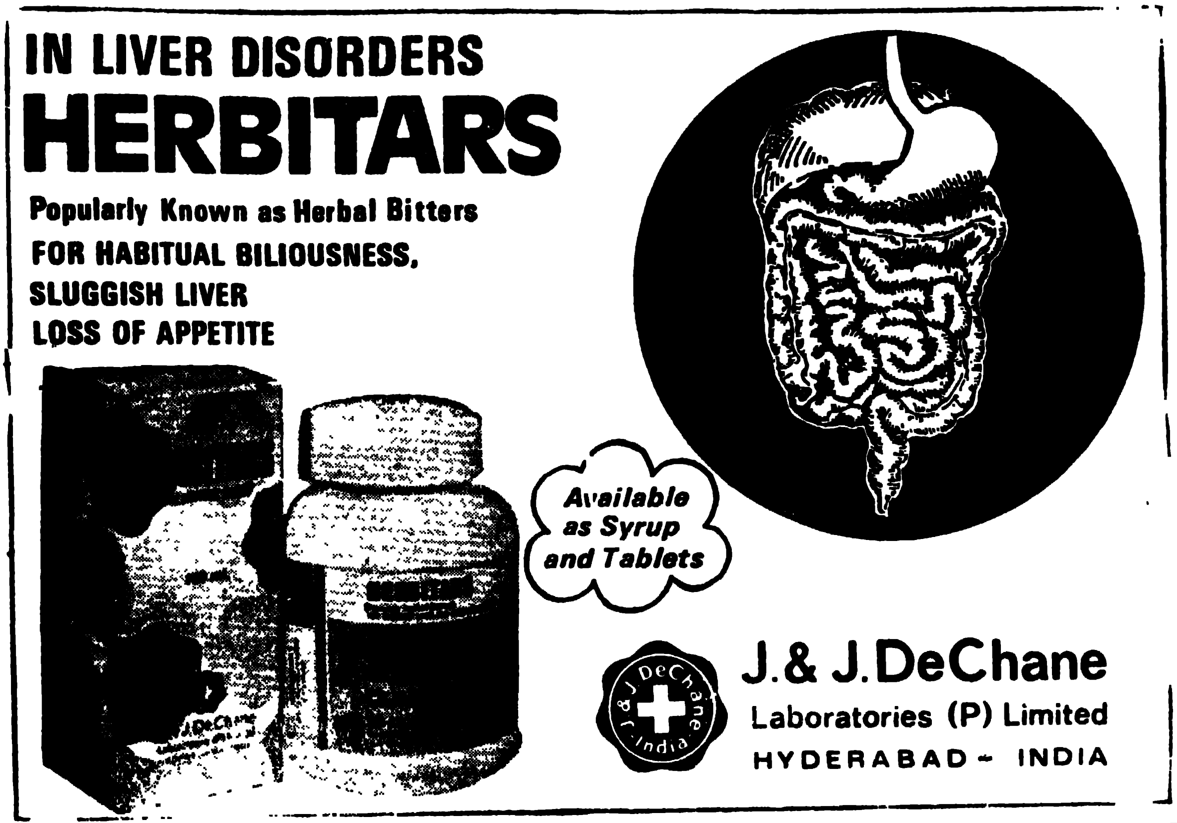
Membership of the IMA as on September 30, 1981 stood at 52811 (Appendix 1).

3. *Overseas Membership of IMA*

74 members in good standing are on the rolls of the IMA as on September 30, 1981 out of which 28 are Life members. In spite of efforts, enough interest has not been evinced amongst doctors of Indian origin residing abroad. As per decisions taken earlier, the annual subscription for overseas members has been revised to $ 15 a year. *IMA News* is being airlifted to overseas members and the *Journal of the Indian Medical Association* is sent by surface mail.

CONSTITUTION

Memorandum, Rules and Bye-laws of the Indian Medical Association as amended up to the close of 1980 has been reprinted. Fresh amendments have been incorporated in the Agenda of the 41st Annual Meeting for consideration of the Central Council. They will be taken up along with those whose consideration was deferred last year.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I, M. L. Banerjee of P.O. Saradapalli, Bhadreswar, Dt. Hooghly, W.B. hereby declare that the particulars given above are true to the best of my knowledge and belief.

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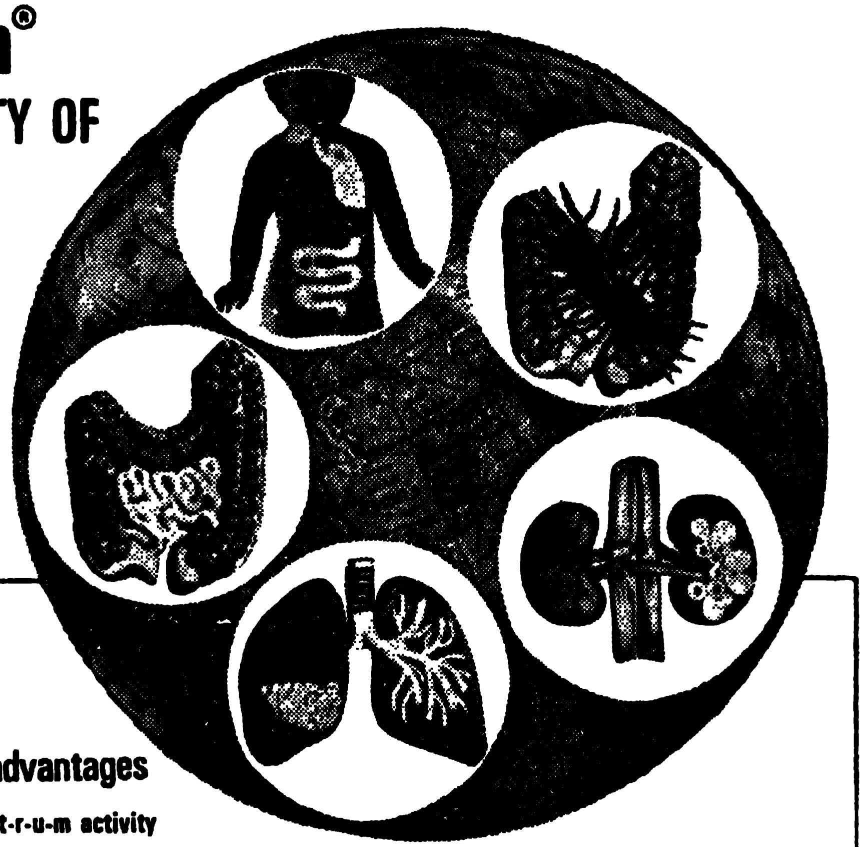

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FINANCE

1. *Accounts*

The statement of audited accounts for the year 1980-81 and the balance-sheet of the Association as on 30-9-1981 duly audited have been circulated.

2. *HFC*

The arrears of HFC as on 30-9-1981 stood at Rs. 147610.22. Co-operation of the State/Territorial and local branches in making collection has been satisfactory but there is scope for more efforts to see that the amount is realised in time and no arrears are shown.

3. *Special Contributory Fund of IMA*

During the year under report one member contributed Rs. 100/- towards this fund. The fund stands at Rs. 301,076/- (Contributions) plus Rs. 136,585/- (Interest) as on 30-9-1981. It is desired that more members contribute to this fund so that it can fulfil the obligation for which it has started.

4. *Finance Standing Committee*

The Finance Standing Committee met twice at IMA House, New Delhi on December 14, 1980 and August 28 and 29, 1981. Brief reports of the meetings have been circulated.

IMA BUILDINGS

1. *IMA Building at Delhi*

IMA Building at Delhi is being used by the members from various parts of the country who visit Delhi for attending meetings and for their private visits. At times, accommodation available in the building does not meet the requirements and the requests have to be regretted. Comforts of the members staying in the IMA House are being looked into but there is always scope for improvement and many a times due to financial constraints and other administrative bottlenecks, certain improvements cannot be made. The plans for extension of the building are being processed by the authorities, the technical objections are being looked into and it is hoped that the project will get started in the near future. A portion of the building continues to be with M/s. Pfizer India Ltd., as per arrangements agreed upon earlier. During the year a mini-auditorium (Lecture Hall) has been carved out of the main-auditorium as per decisions of the Building Standing Committee taken earlier. This is likely to enhance the utility of the 2 auditoria and provide space for the scientific programmes of the Association as also make it possible to hold meetings of the Working Committee because the accommodation in the present Committee Room falls short of requirements.

2. *IMA Building at Calcutta*

The Building at 53, Creek Row, Calcutta, which houses the offices of the 'Journal of the IMA' and 'Your Health' is being maintained. The necessary repairs to the building are being carried out regularly. The draft agreement between the Bengal State Branch of the IMA and the IMA Hqrs. for obtaining accommodation in the proposed building of the IMA State Branch on 'Own your own accommodation scheme' has been circulated for the perusal of the members.

IMA Building Souvenir, which was brought out, has given a net amount of Rs. 63,938.78 to the Building Fund.

MEDICAL EDUCATION

Medical Education Standing Committee of the Indian Medical Association is conscious of the fact that criticism on the medical education in this country is being levelled by several bodies and individuals. It was thought proper to hold a National Medical Education Conference but due to financial constraints, no headway could be made. It has been reported that the Medical Council of India will be holding a Medical Education Conference and the IMA may extend its support and co-operation to this venture, which may later on be approved by the IMA.

NATIONAL HEALTH

A delegation of IMA consisting of 1) Dr. K. P. Mehrotra—President, 2) Dr. M. G. Garg—Hony. General Secretary, 3) Dr. R.K. Menda—Chairman, Action Committee, 4) Dr. A.K.N. Sinha—Past President, 5) Dr. P. C. Bhatla—Past President and 6) Dr. Gopal Das Nag (Bengal) met the Prime Minister and placed the views of the Association on various matters pertaining to providing "Health for All by the Year 2000". The delegation emphasised the urgent need of formulating a National Health Policy and setting up a Central Health Board for its speedy implementation with an emphasis on improving the rural health care delivery for better health of the citizens. It further laid stress upon allocation of at least 10% of the budget, both at national and the State level for the purpose. It also apprised the Prime Minister about starting of Short-Term Courses in certain States and opening of new medical colleges where students will be admitted on payment of capitation fee. The delegation felt that these practices will lead to dilution and commercialisation of medical education, thereby lowering its standard which has to be maintained at the highest level.

The delegation further requested the Prime Minister to render help to the IMA in the organisation of Continuing Education Programmes for keeping the knowledge of general practitioners up-dated in order to enable them to render better service to the ailing humanity and also ensure safety of the life of doctors engaged in their duty, as their has been a continuous increase in number of assaults on doctors.

The delegation gave a memorandum (Appendix—2) to the Prime Minister, who gave a patient hearing.

ELECTIONS

Elections for the offices of the President and the three Vice-Presidents of the IMA for the year 1981-82 :

As per rules of the IMA, the elections to these offices were held and the following were declared elected to the various offices for the year 1981-82 after adopting the report of the scrutineers at the 133rd Meeting of the Working Committee held at New Delhi on August 30-31, 1981 :

President : Dr. R. N. Chatterjee (Jabalpur)

Sr. Vice-President : Dr. Jayaseelan Mathias (Nagercoil)

Vice-Presidents : (1) Dr. R. Ananthanarayanan (Trivandrum)

(2) Dr. N. K. Misra (Patna),

IMA ACADEMY OF MEDICAL SPECIALITIES

1. *Meeting of Governing Council*

A meeting of the Governing Council of the Academy was held at IMA House, Indraprastha Marg, New Delhi on July 2, 1981. The minutes of the proceedings were placed before the 133rd Working Committee meeting and the same were referred back to the Governing Council for reconsideration.

2. *State Chapters*

(i) Tamil Nadu State Chapter : Tamil Nadu State Chapter of the IMA Academy of Medical Specialities was inaugurated by Dr. R. K. Menda, President of the IMA on May 18, 1980. It had on its roll 207 Life members and 2 Ordinary members on September 30, 1981.

(ii) Kerala State Chapter : The Academy Headquarters has already enrolled 95 Life members and 30 Ordinary members from Kerala State. The Kerala State Chapter inauguration took place on July 5, 1981 and has since been functioning well.

(iii) Haryana State Chapter : The Academy Headquarters has already enrolled 107 Life members and 5 Ordinary members from Haryana State. The programme for formal inauguration of Haryana State Chapter is under finalisation.

(iv) Delhi : A vigorous enrolment drive is under way in Delhi and all efforts are being made to enrol the requisite 100 members for the formation of the Delhi Chapter within this year. As on September 30, 1981 Delhi had 58 Life members.

(v) Bihar State : Bihar State has also launched a vigorous membership drive. As on September 30, 1981, they have enrolled 59 Life members and one Ordinary member.

(vi) Appointment of conveners and membership enrolment drive :

Efforts were made to initiate appointment of conveners in many other States. West Bengal State Branch has appointed Dr. Pradeep Majumdar as the convener. Membership drive had also started in A.P., U.P., West Bengal, Gujarat and Maharashtra States.

The formal inauguration of the Haryana State Chapter shall also take place in early 1982, and this will be followed by the inauguration of Delhi and Bihar State Chapters.

3. *Membership*

The work of re-organising the various State Chapters is in progress and the enrolment of members statewise is as follows :

Name of the State	*Life member*	*Ordinary member*
Andhra Pradesh	7	—
Assam	17	—
Bengal	25	—
Bihar	59	1
Chandigarh	6	—
Delhi	58	—
Gujarat	2(+24)*	1
Haryana	107	5
Kerala	95	30
Karnataka	1	2
Madhya Pradesh	1	—
Maharashtra	23	6
Orissa	1	—
Punjab	19	3
Rajasthan	1	—
Tamil Nadu	207	2
Tripura	1	—
Uttar Pradesh	13	4
Total	667	54

*Life membership fee for 24 more members has been received at Academy Headquarters from Gujarat State and the application forms are awaited for completion of formalities.

This shows a net addition of 376 Life members and a reduction of 33 Ordinary members during the current Association Year, over and above the enrolment of 291 Life members and 87 Ordinary members as on 30-9-1980.

Life members as on 30-9-1980................291
" " as on 30-9-1981................667
Net Increase..376
Oridinary member as on 30-9-1980..........87
Ordinary members as on 30-9-1981.......54**

**Some members have opted for Life membership.

4. *Enrolment of Associate Members*

The question of enrolment of Associate members has received the attention of the Governing Council and their recommendations would be given effect to by the Academy Headquarters.

5. *Planning of Inaugural Function and Initiation of Academic Activities at the Academy Headquarters*

The Academy Headquarters has planned formal Inauguration of the Academy at the Headquarters level and initiation of its Academic activities at a Special Function to be held in early 1982. A detailed programme had been worked out by the Governing Council.

INSURANCE

(i) *ESI Standing Committee*

The ESI Standing Committee of the Indian Medical Association met at New Delhi on August 31, 1981.

(ii) *Employees' State Insurance Corporation*

Dr. J. Majumdar (Calcutta) continued to represent the IMA on the Employees' State Insurance Corporation.

(iii) *Medical Benefit Council of ESIC*

Dr. (Mrs.) Lalita Rao (Bombay) represented IMA on the Medical Benefit Council of ESIC.

(iv) *All-India ESI Medical Convention*

An All-India ESI Medical Convention was held under the auspices of the Bengal State Branch of IMA at Calcutta on November 29, 1980.

(v) *Medical Protection Insurance Scheme, IMA*

The Working Group of the Scheme continued to function during the year.

(vi) *Life Insurance Corporation*

IMA finalised a memorandum for submission to the Life Insurance Corporation regarding scales of fees for medical examiners, etc.

ACTION COMMITTEE

The Standing Committee on "Actions" of the Indian Medical Association met at New Delhi on February 12, 1981, April 25, 1981, and July 2 and 3, 1981, and took stock of the situation, a brief report of which is appended (Appendix—3).

DRUGS AND MEDICINES

1. *Therapeutics and Appliances Standing Committee*

Therapeutics and Appliances Standing Committee of IMA met at New Delhi on August 19, 1981 and submitted a report.

2. *Drugs Technical Advisory Committee*

Dr. M. A. Panwala (Bombay) continued to represent IMA on the Drugs Technical Advisory Committee and placed a report on the meeting of the Committee attended by him on October 4, 1980.

FAMILY WELFARE

1. *Family Welfare Planning Standing Committee*

A meeting of the Family Welfare Planning Standing Committee was held at New Delhi on August 19, 1981. A brief report of the meeting has been circulated.

2. *IMA Dr. C.L. Jhaveri Family Planning Award*

The following were awarded IMA Dr. C.L. Jhaveri Family Planning Awards for the year 1980-81 :

(i) Dr. G.R. Sethi (Dehradun) (for best individual performance by a member of IMA in the field of Family Planning).

(ii) Gujarat State Branch (for best performance by a State Branch in the field of Family Planning).

IMA BENEVOLENT FUND

The Fund stood at Rs. 541046-35 at the close of the year with Rs. 16000-00 disbursed during the year as loans and grants.

A sum of Rs. 3633-25 was recovered on account of loans given to members. All the applications received from the members for grant/loan through the Local and State Branches were processed speedily and action taken as per recommendations of the Committee of Management.

DOCTORS IN SERVICE

1. *Medical and Health Services Standing Committee of IMA*

The Medical and Health Services Standing Committee of IMA continued to function during the year under report.

2. *Doctors in Coal Mines*

Dr. P. K. Dutta (Dhanbad) continued to represent IMA on the Coal Mines Labour Welfare Fund Advisory Committee and submitted his report on the meetings of the Committee held during the year.

IMA COLLEGE OF GENERAL PRACTITIONERS

1. The 29th and 30th Meetings of the Governing Council were held at Cuttack on December 26th and 29th, 1980 respectively. The 31st Meeting was held at New Delhi on 18th August, 1981.

The Governing Council has approved certain changes in the Rules and Bye-laws of the College. This has been subsequently ratified by the Working Committee Meeting held on 30th and 31st August, 1981 at New Delhi and forwarded to the [illegible] for final approval.

2. The 13th Annual Convocation of IMA College of General Practitioners was held at Cuttack on 28th December, 1980. Dr. R.K. Menda, President of the College presided at the Convocation. Dr. Radha Nath Rath, Editor, *The Samaj* and Pro-Chancellor, Orissa University of Agriculture and Technology delivered the Convocation Address. 47 doctors were awarded Fellowship at the Convocation.

3. The following FCGP Examinations were held in the last Academic Year under the auspices of the College :

(i) *VII and VIII FCGP Examinations*

The VII FCGP Examination was held on November 15-17, 1980 and the VIII FCGP Examination was held on April 11-13, 1981. The result of the VII FCGP Examination was declared and the successful candidates received their scrolls during the 13th Annual Convocation.

(ii) *IX FCGP Examination*

The IX FCGP Examination was held on October 24-26 1981. The successful candidates of VIII and IX Examinations will receive the scrolls during the 14th Convocation to be held at Nagercoil (Tamil Nadu). In the VII and VIII Examinations candidates appeared at the following Centres :

VII Examination Centres : 1. Delhi. 2. Patna. 3. Darbhanga. 4. Cochin (for Part-I only). 5. Hyderabad. 6. Bengusarai.

VIII Examination Centres : 1. Delhi. 2. Cochin. 3. Patna. 4. Darbhanga. 5. Hyderabad.

In the VII Examination 173 candidates appeared ; 125 passed successfully, 38 got compartments, 10 failed. In the VIII Examination 117 candidates appeared, 57 passed successfully, 44 got compartments, 16 failed.

4. The 12th Mid-Year Academic Seminar on "Recent Advances in Diagnosis and Therapy" was held at New Delhi from August 16-18, 1980. About 200 participants attended the workshop. The seminar was inaugurated by Dr. I.D. Bajaj, D.G.H.S. It was atteneded by most of the Governing Council members along with other Standing Committee members who happened to be present in the station in addition to many delegates who registered themselves from all over the country. We could also enrol a few overseas doctors who specially came to attend the seminar. The detailed report of the Seminar has been included in the Annual Report of the College.

IMA STUDY TOURS

(1) *XXX IMA Study Tour to UK, USA and Canada*

IMA Study Tour to UK, USA and Canada with 55 participants left India on September 23, 1980. The tour terminated at Los Angeles in October 11, 1980. The tour was organised to coincide with the IX World Conference of National Associations/Academies of General Practice at New Orleans from October 4 to 9. 1980. A large number of members registered themselves for the Conference and utilised the facilities and educative programmes arranged on this occasion.

Dr. A.P. Shukla, Past President, IMA was leader-in-chief along with Dr. J.J. Sood (Delhi), Dr. Harish Grover (Delhi), Dr. C.S. Sharma (Patna) and Dr. Naren A. Shah (Ahmedabad) as co-leaders. Dr. A.P. Shukla, leader-in-chief submitted a report.

(2) *IMA Study Tour to UK, US and Canada*

IMA Study Tour to UK, USA and Canada with 53 participants left India on September 11, 1981. The tour terminated at San Francisco on 28th September, 1981. Dr. O.P. Kapur (New Delhi) and Dr. Ram Janam Singh (Patna) were appointed leaders of the tour. The leaders submitted a report.

MEETINGS AND CONFERENCES ABROAD

(1) *10th All Nepal Medical Conference held at Kathmandu (Nepal) from February 19 to 22, 1981*

The following were nominated to represent IMA at the above Conference: (i) Dr. P.S. Sarma (Amlapuram). (ii) Dr. K.P. Bhattacharya (Sitamarhi). (iii) Dr. Durga Das Mukherjee (Danton—Midnapore). (iv) Dr. Ram Shakal Prasad (Muzaffarpur).

Dr. P.S. Sarma (leader) submitted a report.

(2) *Annual Representative Meeting of the British Medical Association held at Brighton—June 29 to July 2, 1981*

Dr. B.C. Amin (Ahmedabad) and Dr. R.K. Sakuja (Delhi) were nominated to attend the above meeting as delegate and observer respectively.

(3) *12th Congress of C.M.A.A.O. (Confedaration of Medical Associations in Asia and Oceania) held at Seoul (Korea) from September 14 to 17, 1981*

An official invitation to the above Congress was received at the IMA Headquarters. No representative from IMA could be sent.

(4) *8th National Conference of Bangladesh Medical Association at Dacca on February 27, 28 and March 1, 1981*

An official invitation to the above Conference was received at the IMA Headquarters. However, no representative from IMA could be sent.

WORLD MEDICAL ASSOCIATION

The 34th World Medical Assembly of the World Medical Association was held at Lisbon (Portugal) from September 28 to October 1, 1981. Indian Medical Association nominated Dr. R.K. Menda as its official delegate. Besides Dr. Menda, Dr. M.G. Garg, Hony. General Secretary and member of Executive Council of the World Medical Association attended. Dr. Siddhartha Mukherjee and Dr. R. S. Sinha (Ranchi) attended as observers.

The World Medical Assembly in its 34th Session while accepting the invitation of the Indian Medical Association to host the 35th World Medical Assembly in 1983 in New Delhi, declared Dr. A.K.N. Sinha, Past President, Commonwealth Medical Association as President-Elect for the above Assembly.

The 9th Council Session of the World Medical Association was held at Munich (W. Germany) from October 21 to 24, 1980. Dr. D. S. Mehra (New Delhi) attended the Session as a member of the Council from the Asia region and submitted a report on the Council Session.

OUTSIDE BODIES

The following were the IMA representatives on outside bodies in India :

Sl. No.	*Name of the outside body*	*Name of the Representative*
1	National Institute of Health Administration and Education	President, IMA
2	Council of Social Development	President, IMA
3	Medical Benefit Council of ESIC	Dr. (Mrs.) Lalita Rao (Bombay)
4	Employees State Insurance Corporation and its Standing Committee	Dr. J. Majumdar (Calcutta)
5	Central Council of Health, Government of India	President, IMA
6	Central Family Planning Council (Government of India)	President, IMA
7	Drugs Technical Advisory Board	Dr. M.A. Panwala (Bombay)
8	Development Council for Drugs and Pharmaceuticals	(i) Dr. M.G. Garg (Delhi) and (ii) Dr. Sukomal Sen (Calcutta)
9	Indian Association for Occupational Health	Dr. P.K. Dutta (Dhanbad)
10	Indian Nursing Council	Dr. Kalyan Hazari (Patna)
11	Telephone Advisory Committee	Nominees of Local Branches of IMA on certain T.A. Committees
12	Indian Parliamentary Scientific Committee	(i) President, IMA (ii) Hony. General Secretary, IMA
13	National School Health Council	Dr. (Lt. Col.) R.K. Chakravarty (Calcutta)
14	Essential Drugs Committee, Ministry of Petroleum, Chemicals, Government of India	President, IMA
15	Central Institute of Research and Training in Public Co-operation.	Hony. General Secretary, IMA

Sl. No.	*Name of the outside body*	*Name of the Representative*
16	Coal Mines Labour Welfare Fund Advisory Board	Dr. P.K. Dutta (Dhanbad)
17	Committee to Study IDPL Surgical Plant (Madras)	Prof. B.N. Sinha (Lucknow)
18	National Family Planning Awards Committee, Ministry of Health and Family Planning	Dr. P.C. Bhatla (New Delhi)
19	Citizens Central Council	Hony. General Secretary, IMA
20	National Institute of Public Co-operation and Child Development, New Delhi	Hony. General Secretary, IMA
21	Committee Appointed by the Ministry of Chemicals and Fertilizers to Lay Down Norms for Appropriate Packing Costs for Drugs and Pharmaceuticals	Dr. N.L. Sastry. Vijayawada
22	Central Advisory Board for the Commercial Broadcasting Service	Dr. Y.S. Bhorgay (Poona)
23	Working Group on Drugs and Pharmaceuticals Formulating Drugs Plans for the Period (1978-79 to 1982-83)	Dr. M.G. Garg. Hony. General Secretary, IMA
24	Re: International Year of the Child (Government of India, Department of Social Welfare, Ministry of Education)	Dr. Sisir Bose (Calcutta)

OUTSIDE ORGANISATIONS

A global seminar on the role of scientific and engineering societies in development was organised by American Association for the Advancement of Science, Washington; Indian National Science Academy, New Delhi, and Indian Science Congress Association, Calcutta, at India International Centre, New Delhi, from December 1 to 5, 1980. Dr Harish Grover (Delhi), Hony. Joint Secretary, IMA represented IMA at the seminar and submitted a report.

AWARDS/ORATIONS

(1) *Awards for 1980 :*

The following awards were announced for the year 1980 :

(a) Dr. C.S. Thakar Oration Award of IMA

Subject : "Health for all by the year 2000 A.D.",

This award was given to Dr. Jayaseelan Mathias of Nagercoil.

(b) The IMA Medical Education and Research Award for Young Graduates :

Subject : "Short-Term Courses in Medicine—A necessity or political gimmic".

This award was given to Dr. (Mrs.) Pragya Kumar, Chandigarh.

(c) IMA Dhirendra Nath Dutta Award in Cardiology :

Subject : "Rheumatic Heart—A Preventive Disease".

No entry was considered suitable and the award was not given.

(d) IMA Dr. D.S. Munagekar Award for the best published research work in any subject in the field of medical sciences including clinical research.

This award was given to Dr. M. Subrahmanyam, Miraj,

(e) IMA Dr. C. T. Thakar Award to encourage community service by young doctors.

Dr. P.S. Sharma (Amalapuram) was given this award.

(f) (i) IMA Dr. C. L. Jhaveri Family Planning Award for best individual performance by a member of IMA.

The award was given to Dr. G.R. Sethi, Dehradun.

(ii) Dr. C. L. Jhaveri Family Planning Award for State Branches, IMA.

The award was given to Gujarat State Branch, IMA.

(2) *Trophies for the Year 1980 :*

(a) Trophy for Membership Drive :

The trophy for Membership Drive was awarded to the Tamil Nadu State Branch.

(b) Rotating Trophy for best overall performance of the Local Branch :

The Local Branch Trophy for best overall performance was awarded to Bangalore Branch of IMA under Karnataka State Branch.

(3) *Awards for 1981 :*

The following awards were announced for the year 1981 :

(i) IMA Medical Education and Research Award :

Subject : Evaluation of Rural Health Care Delivery System.

Assessors : 1. Dr. B. K. Anand, New Delhi,
2. Dr. B. Ramamurthy, Madras.

(ii) Medical Students Essay Contest of IMA :

Subject : Future of Medical Education/Training in India —Student View-point.

Assessors : 1. Dr. Gopal Das Nag, Calcutta, 2. Dr. C. P. Munshi, Baroda.

(iii) IMA Dhirendra Nath Dutta Award in Cardiology :

Subject : Role of Socio-economic Factors in the Prevention of Heart Disease.

Assessors : 1. Dr. N. S. Dixit, New Delhi, 2. Dr. R. N. Tandon, Kanpur, 3. Dr. A.K.N. Sinha, Patna.

(4) *IMA Dr. C.L. Jhaveri Family Planning Awards :*

1. For best individual performance by a member of IMA in the field of Family Planning.
2. For best performance by a State Branch in the field of Family Planning.

VISIT BY COLLEAGUES FROM ABROAD

Groups of doctors from United States of America and other countries have been making visits of India. Continuing Education Programmes were arranged for them in Bombay, Madras, Jaipur and New Delhi. At several places, hospital visits were also arranged. Colleagues from abroad have made full use of these programmes, and exchanged expertise with counterparts in India. These visits have helped strengthening bonds of fellowship between various national organisations.

PRESIDENT AND VICE-PRESIDENTS' TOURS

Dr. K. P. Mehrotra, President IMA toured the following Local Branches during the year :

1. Delhi. 2. Varanasi (U.P.). 3. Fatehgarh. (U.P.) 4. Calcutta. 5. Dhakuria. 6. Howrah. 7. South Calcutta. 8. Jodhpur.

Dr. Sukomal Sen, Sr. Vice-President, IMA, Dr. A. J. Narendran, Vice-President, IMA and Dr. N.K. Verma Vice-President, IMA, also visited certain Branches.

SECRETARY'S TOUR

Dr. M G Garg, Hony. General Secretary, IMA visited a number of Branches in U.P. during the year.

ADMINISTRATION

Additional posts sanctioned by the Working Committee at the Headquarters office could not be filled during the year due to financial constraints and non-availability of suitable incumbents at the existing pay-scales. The Working Committee in its 133rd Meeting held at New Delhi authorised the President to form a Committee to look into the matter and while recommending pay-scales for various posts also identify the work load and suggest the staff strength at various offices in order to enable the offices to cope with the increasing work-load. The Headquarters office in particular has during the year worked for most of the time without an Executive Officer. It is hoped that the recommendations of the Committee with the approval of the Working Committee will help streamline the functioning of the offices of the Association.

APPENDIX—I

State Territorial Branchwise Break-up of the Membership as on September 30, 1981

State/Territorial and Direct Branches	No. of Branches as on 30-9-81	Net Members 1980-81	Net Members 1979-80
1. Andhra Pradesh	77	3367	3145
2. Assam	29	838	697
3. Bengal	121	6642	6095
4. Bihar	84	4625	3627
5. Chandigarh	1	260	228
6. Delhi	1	1894	1894
7. Gujarat	81	4595	4521
8. Goa, Daman & Diu	2	43	87
9. Haryana	21	845	707
10. Himachal Pradesh	1	73	73
11. Karnataka	59	4710	4071
12. Kerala	30	3611	3510
13. Madhya Pradesh	47	2012	1791
14. Maharashtra	103	6327	5687
15. Orissa	34	864	845
17. Punjab	99	1726	1449
17. Rajasthan	29	1329	1256
18. Tamil Nadu	47	4595	3618
19: Tripura	1	137	135
20. Uttar Pradesh	91	4363	3945
21. Direct Branches	16	826	718
22. Direct Members	—	16	14
23. Attached Members	—	39	47
24. Overseas Members	—	74	85
Total	941	52811	47254

APPENDIX—2

Copy of Memorandum Handed over by the IMA Delegation to the Prime Minister

Madam Prime Minister,

It is really very gracious of you to have spared some of your valuable time for the delegation of Indian Medical Association to meet you and to place before you certain matters of vital concern for the health and welfare of the people as well as of the medical profession and the role the medical profession should play for achieving this goal.

You are well aware about the functioning of our Association which is the national medical organisation at par with other national organisations like the British and American Medical Associations. The objectives of the Association are :

1. To promote and advance medical and allied sciences in all their different branches and to promote the improvement of public health and medical education in India.
2. To maintain the honour and dignity and to uphold the interests of the medical profession and to promote co-operation amongst the members thereof.
3. To work for the abolition of compartmentalism in medical education, medical services and registration in the country and thus to achieve equality among all members of the profession.

We hereby approach you to kindly consider certain vital matters in the fulfilment of above mentioned objectives. A brief resume of the same is attached herewith for your kind perusal and necessary action. We further request you to take into consideration the following proposals of the Indian Medical Association.

(1) Indian Medical Association be involved in national health planning by including its representatives in the Planning Commission and its various bodies.

(2) Help from the Government of India in conduction of a Workshop by the Indian Medical Association for formulating the National Health and Medical Education evaluation.

(3) *National Institute of Rural Health*: Health being the most

the needs of the Rural Health Programme in various parts of the country in providing training to all Medical Officers and Para-medicals for implementation of the Rural Health Programmes. It will further undertake periodical visitations by its officers, experimentation with innovative measures, implementation of the projects and constant evaluation of the work performed, should be the main objective of this Institute to ensure delivery of Rural Health Care on uniform pattern throughout the country.

(4) *National Health Implementation Commission* : This Commission should have representatives of the voluntary organisations engaged in the Health Care Delivery Programme and National Family Welfare Planning (such as Indian Medical Association), public men of eminence devoted to social service and Government representatives at various levels. Such a Commission will help evolve a machinery to gear up the profession and the people for fulfilment of the objectives of National Health and Medical Education Policy.

(5) In order to achieve the goal "Health For All By The Year 2000", Health and Family Welfare Planning be taken up as a central subject to ensure uniformity in implementation of the guidelines that you were kind to enunciate in your Address to the World Health Organisation in its Assembly at Geneva.

(6) Financial outlay on Health out of the national budget, at the State as well as the Central level be increased substantially. Indian Medical Association is of the opinion that it should be at least 10 per cent (if not 15 per cent) of the total outlay as against a meagre 3-3·5 per cent at present.

We are hopeful that our suggestions will receive your due consideration for the improvement of the health of the citizens of this great country, to which, we are all committed.

Yours faithfully
Dr. K. P. Mehrotra
President

BRIEF RESUME

I. Involvement of medical profession in health planning

Being the national medical organisation, we feel that we should be consulted on all major policies of health and medical education in the same way as other similar associations abroad, as British and American Medical Associations are being taken into confidence.

II. National health policy

In spite of our firm commitment to provide health care for all, no National Health Policy has yet been clearly defined. In spite of several recommendations by various Committee, appointed by the Government of India unfortunately, none could be fully implemented. Rather ad hocism has been the sheet anchor for the progress made so far.

It is high time the Government of India lays down the National Health Policy encompassing there in medical policy, drugs policy, health manpower development policy, population planning policy and rural health development policy.

It is on these policies that the successful implementation of various [illegible] and projects depends.

IMA highlighted the need for such a Policy and also submitted a Draft Health Policy for the consideration of Government but unfortunately the same has not been considered favourably. Instead a draft policy was given which we pointed out was inadequate and will not solve the problems of the country adequately. Ever since we are waiting for the above Health Policy, we are ever prepared to offer our voluntay co-operation in formulating as well as implementing such a policy.

It would be worthwhile considering total involvement of the whole medical manpower to implement all health welfare programmes in providing medical relief. The private sector cannot be totally ignored and has to be geared into the national main stream.

III. Medical education

The pressing problems of today, are the problems related to medical education and health delivery care. They are :

1. *Capitation Fee* : We are distressed to find that the growing tendency to commercialise medical education. Admission to Medical Colleges (undergraduate and postgraduate course) on the basis other than merit will be detrimental. We are happy to note from the newspapers and you are also concerned with the same.

2. *Short-term Courses* : Recently short-term medical courses have been started in some States (West Bengal and Maharashtra) on the excuse that medical graduates are not willing to go to the rural areas. This is far from fact.

On the contrary, medical graduates are available *ad lib*, specially, when it is a fact that considerable amount of unemployment is there. We see no reason why medical graduates will not go there, if jobs are available to them. There is no valid reason, therefore, to start these short-term medical courses and to produce sub-standard doctors, to cater to people living in rural areas who also have the same rights to health as the people living in urban areas.

These doctors qualifying in short-term courses will eventually settle in urban areas and there can be no guarantee that they will only work in rural areas. They will also clamour for Condensed M.B.B.S. courses to be at par with medical graduates. Where and how they will be trained is beyond comprehension, as the work-load of teaching institutions for training medical graduate is already so heavy.

IV. Family welfare

We find that all the Family Welfare Programmes, that are enforced today, lack the involvement of the Family Physician, the backbone of the profession, whose number is over 125,000 or so.

In spite of the fact that family physicians, through IMA, have time and again volunteered to involve themselves in this vital programme ; unfortunately it has not been done to the desired extent.

V. Para-medical personnel

The need of the country is not sub-standard doctors but properly trained para-medical personnel whose training programmes have not only to be augmented but created on priority basis, so that they can help the doctors effectively in the delivery of health care and discharge of their duties.

VI. Reservation of seats

While not denying the necessity of protecting the interests of the backward and weaker sections of our population, who have constantly suffered through unfavourable socio-economic conditions, experiments in technical education like reservation of seats in postgraduate medical education, are likely to cause more harm than good.

IMA proposes that the whole question of reservation of seats at specially postgraduate level be reviewed and a consensus evolved. Appointment should be on basis of merit alone and nothing else.

IMA further feels that the pace of other national programmes for betterment of the socio-economic conditions of the backward classes should be so accelerated that the special protective measures, like reservation of seats, may not be required after a decade.

VII. Assault on doctors

IMA is particularly perturbed over the rising incidence of assaults on doctors in some States. Indian Medical Association has extended help and assistance in trying to improve the sociomedical mileau in these areas, thereby promoting better understanding to avoid recurrence of such unhonoured behaviour by the people. The State Governments have to ensure security to the medical profession and the other staff in discharge of their duties.

APPENDIX—3

REPORT ON THE MEETING OF THE STANDING COMMITTEE ON ACTIONS DURING THE PERIOD UNDER REPORT

A meeting was held on February 12, 1981. The Committee was informed that the Central Council of the IMA in its 40th annual meeting had adopted resolution to fight the introduction of short-term courses of medicine by various States in the country. In the meantime certain other developments have taken place which also need attention of the Committee, namely, closure of the medical colleges in Gujarat as a result of agitation on the issue of reservation of seats for certain categories on caste basis for admission to the postgraduate courses and starting of medical colleges on the basis of capitation fee in the State of Karnataka. The Chairman,—Dr. R. K. Menda, aprised the members as under :

Meeting of the Chief Minister and Health Minister Government of West Bengal during the preceding year as also with the Chief Minister of Maharashtra acquainting them with the views of the Indian Medical Association on the introduction of short-term medical courses. The Committee noted the progress already made by the Government of West Bengal in starting the courses. It was also informed that a move was afoot in the State of Gujarat which, however, is held in abeyance on the intervention of Gujarat State Branch of the IMA. It was agreed that the pressure has to be exerted through the Central Government on the State Governments to achieve the objectives. It was decided that all the State Branches of the IMA be directed to send a telegram as under to the Prime Minister of India :

"Indian Medical Association...branch expresses grave concern over introduction of short-term course in medicine. Intervention

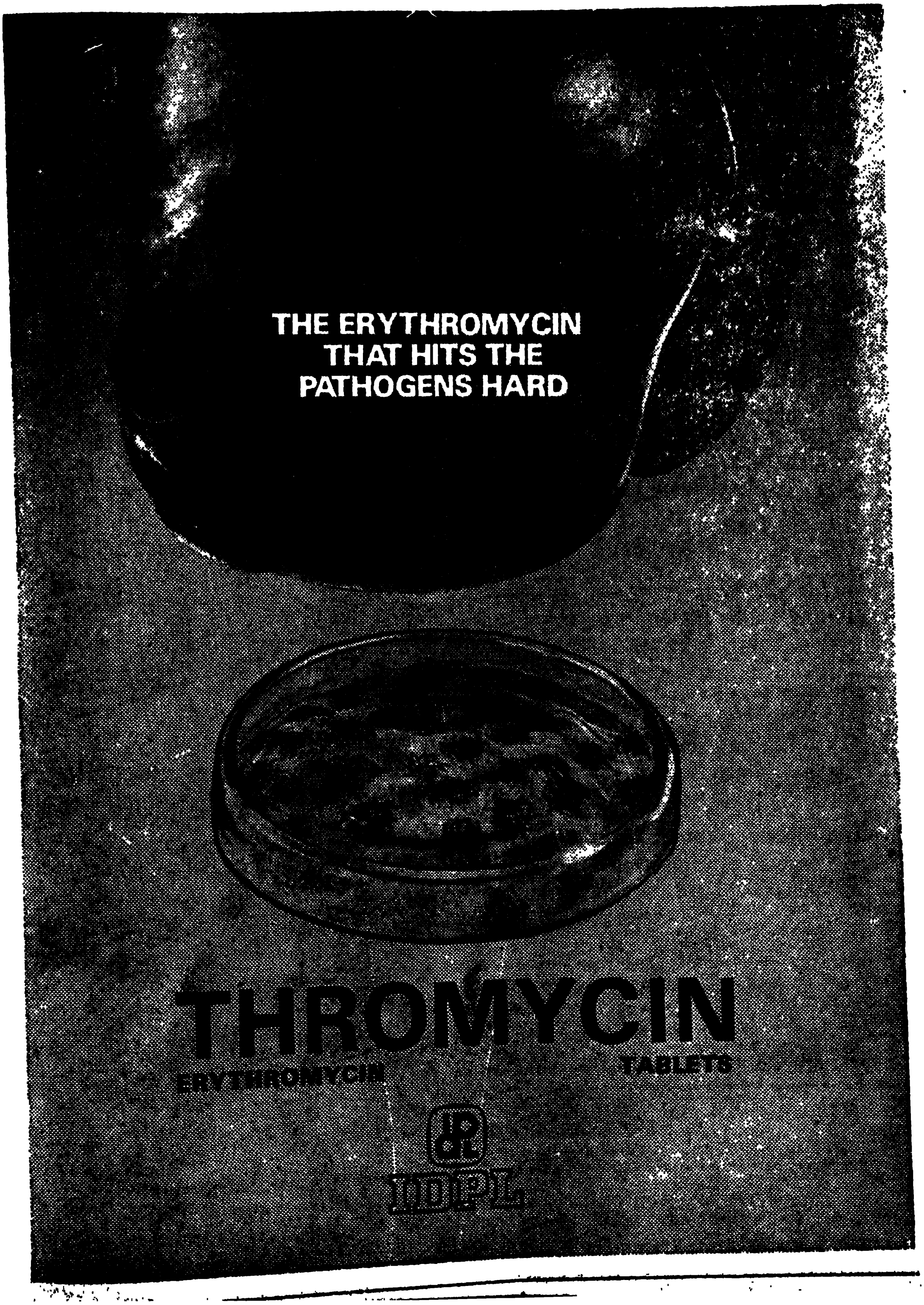
The Committee was informed that the Government of India in the Ministry of Health and Family Welfare is opposed to the introduction of short-term courses. It was further decided that all the local branches of the IMA be directed to pass resolutions opposing the introduction of short-term course and send them to the Prime Minister of India through the State Branches to be routed through the IMA Hqrs. Necessary circular in this regard was issued by the IMA Hqrs. The Committee desired that the Chairman should use his good offices to make an appointment with the Prime Minister of India, to meet her and apprise her of the problem. Dr. A. P. Shnkla and Dr. K. K. Shah, special cooptees from Gujarat, informed the committee that Gujarat State Branch of the IMA had given full support to the agitation of the medicos against the reservation of seats in admission to the postgraduate courses in the State of Gujarat. A letter received from the Secretary, Government of Gujarat in response to a communication from the Hqrs. Office on the subject was read. Representatives from Gujarat certified it as factual. It was also said that the Health Minister in the State of Gujarat had agreed to increase the number of seats in postgraduate course to accommodate candidates from tee reserved categories in order to safeguard the interest of the merited candidates. It was decided to approach the Association of Gujarat to take necessary steps to contain the situation, restore normalcy in the interest of the medical education and healih care delivery in the State. The following resolution was adopted.

"IMA expresses its grave concern over the deteriorating situation in the State of Gujarat as a result of closure of Medical Colleges resulting in neglect of health care delivery and medical education. It urges upon the Government of Gujarat to find an amicable solution of the problem by negotitations with the parties according to advice of the Medical Council of India in the interest of all concerned. IMA offers its good offices to help resolve the situation. In view of the anxious enquiries IMA is receiving from all parts of the country, if the situation is allowed to drift, Central Working Committee of IMA will have to review the situation and act accordingly.

The Committee took stock of the correspondence of the Karnataka State Branch and the press reports, as also the communication to the Government of Karnataka by the Hqrs. Office. The last communication from the State Branch informing of the formation of the committee by the Government of Karnataka to study the problem was also read and noted. It was desired that the Government of Karnataka be aproached to include the President of the IMA or his nominee in the said committee; besides the President of IMA Karnataka State Branch. The next meeting was held on the 2nd and 3rd July, 1981 which noted the actions taken as under :

The resolutions adopted in the Working Committee was forwarded to the Prime Minister and Gujarat State Branch of the IMA. It was desired that the same be forwarded to all the State Governments speedily. The matter of taking appointment from the Prime Minister was reported as pursued.

After discussion it was desired to observe an All-India Protest Day by the branches of the IMA preferably on a day to be fixed by the Chairman, to focus the attention of the people and the press on these problems. The branches [illegible]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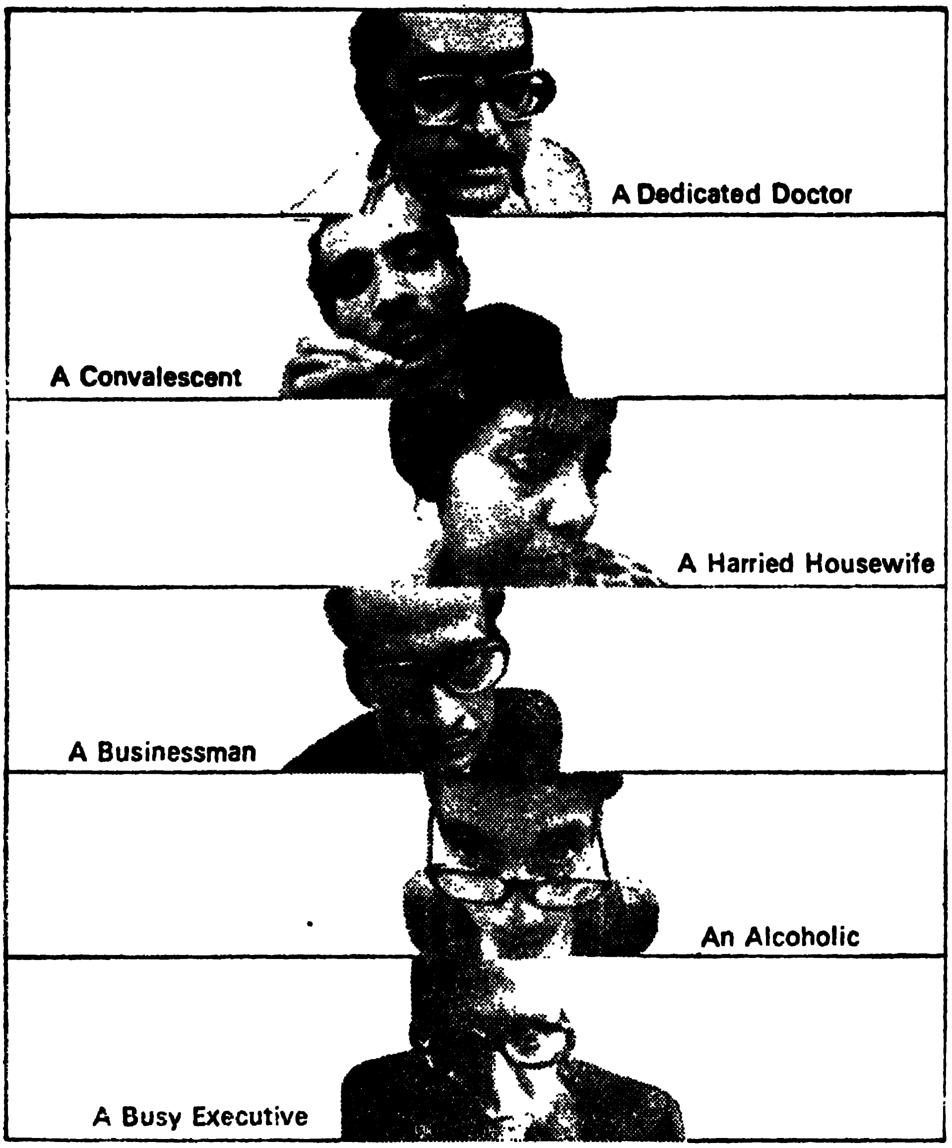

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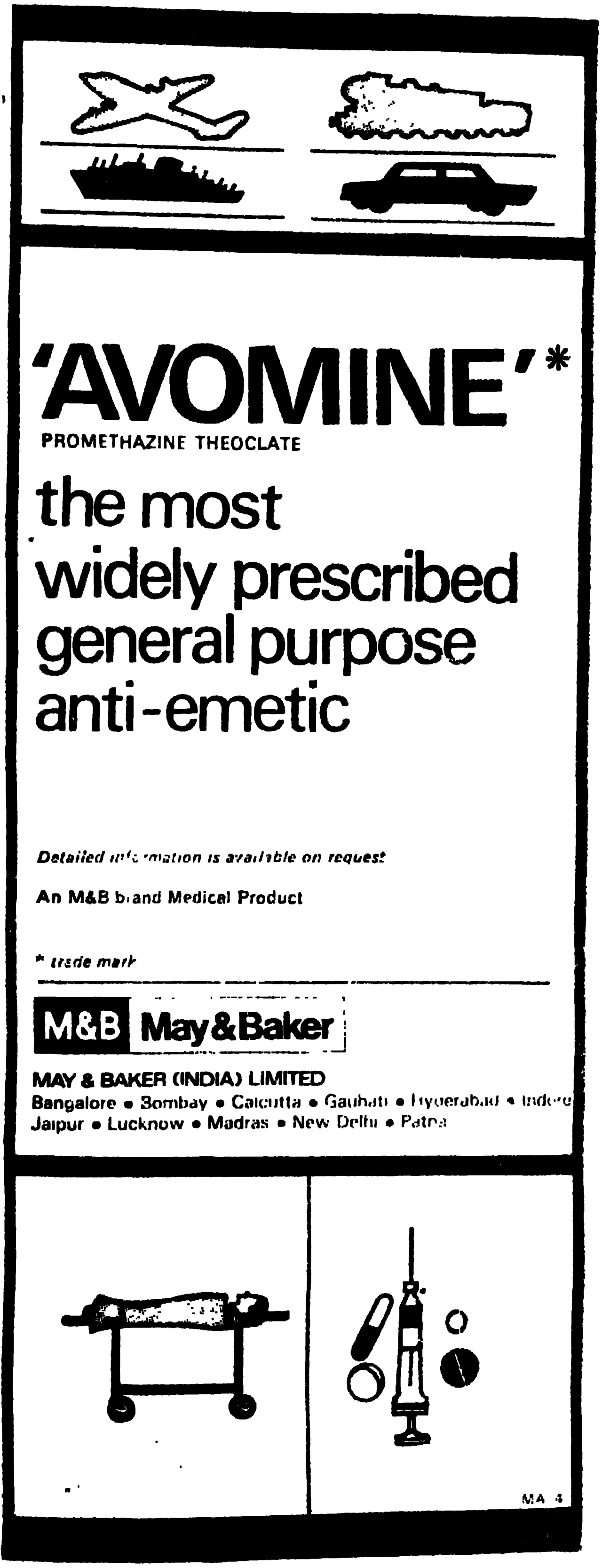

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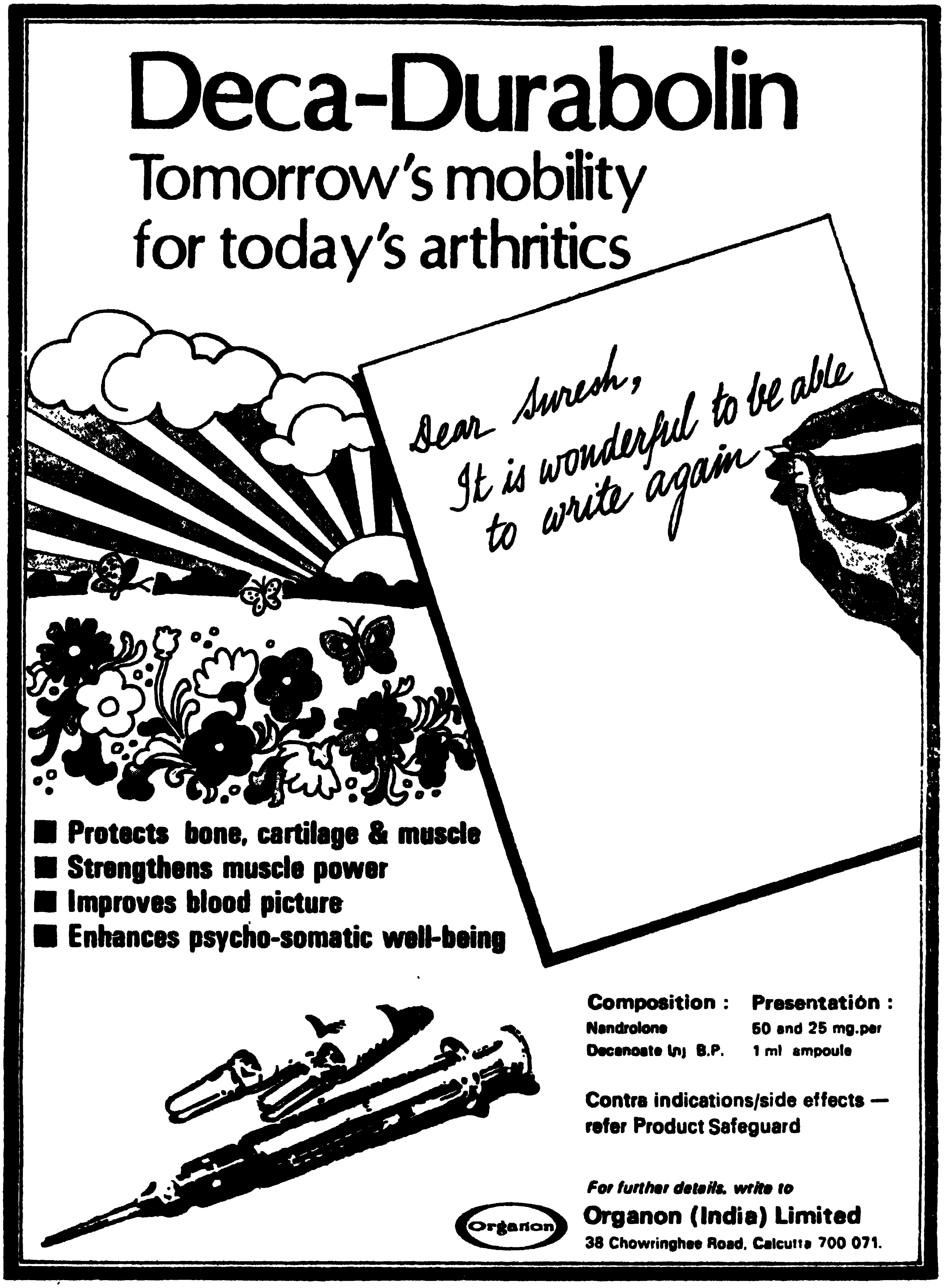

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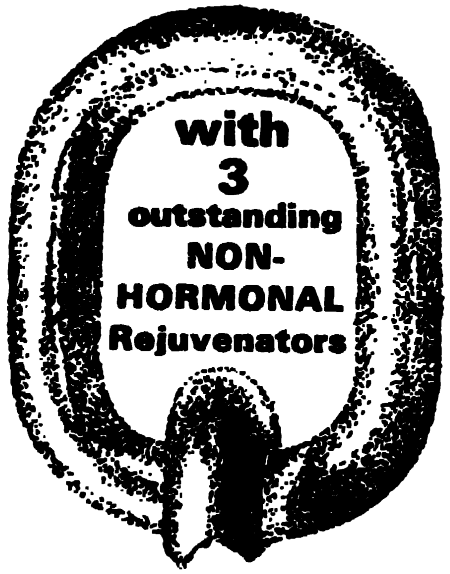

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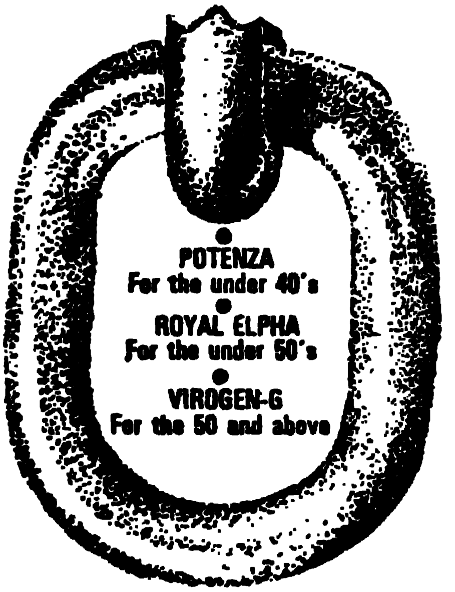

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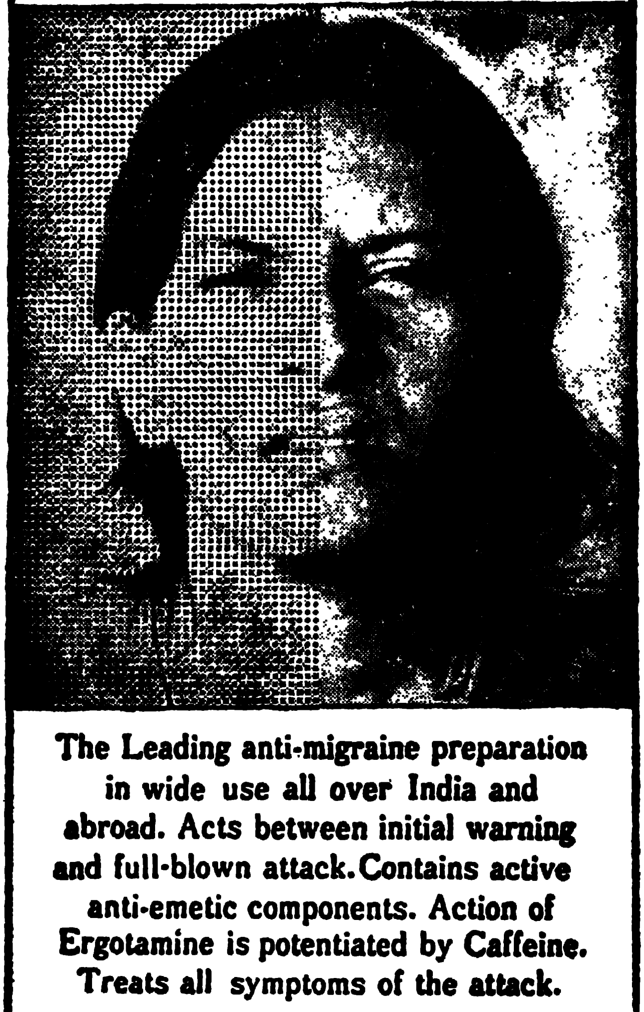

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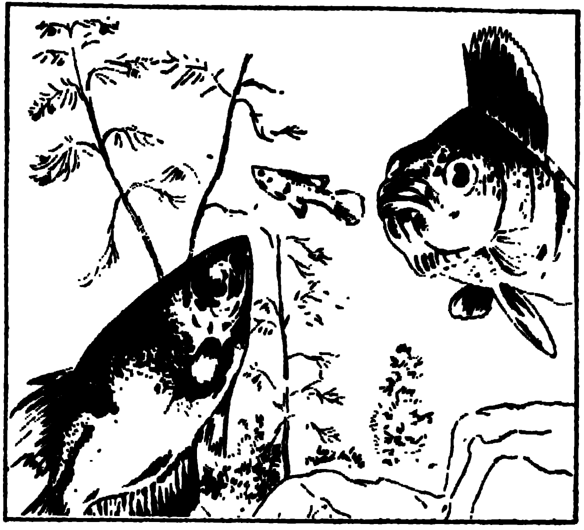

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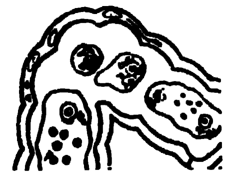

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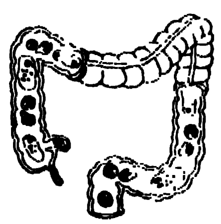

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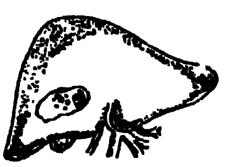

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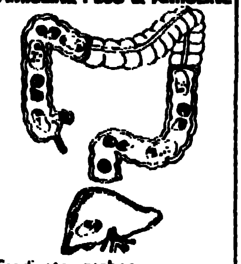

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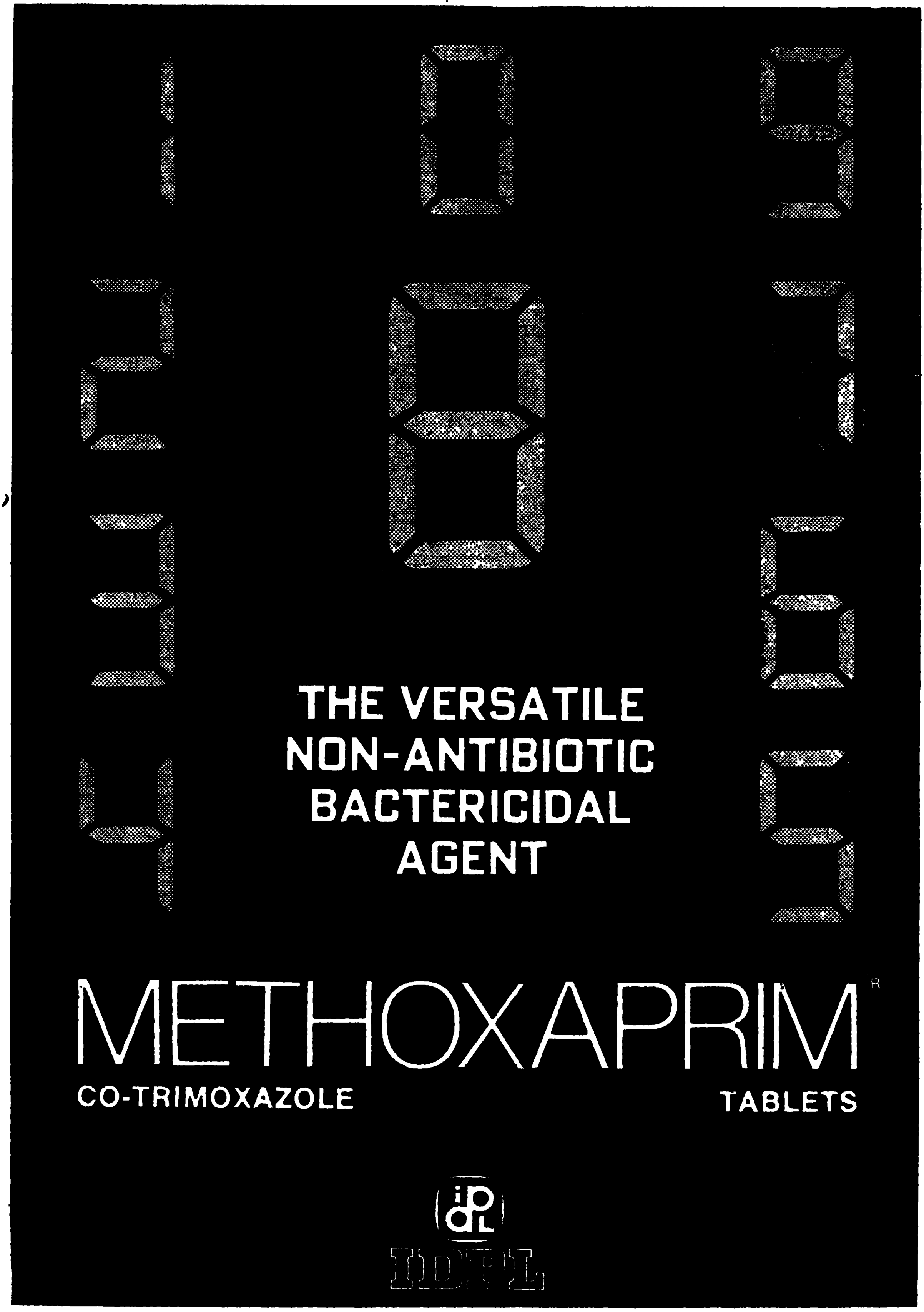

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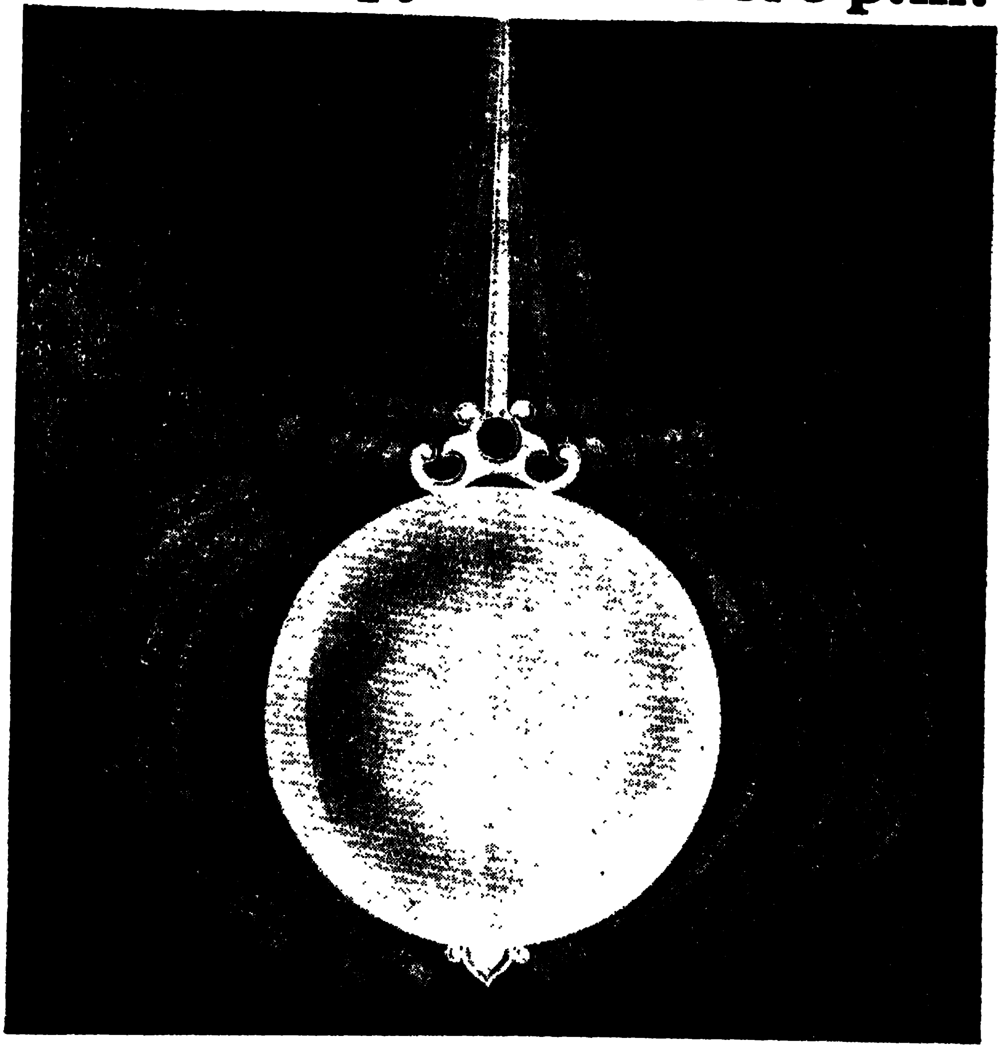

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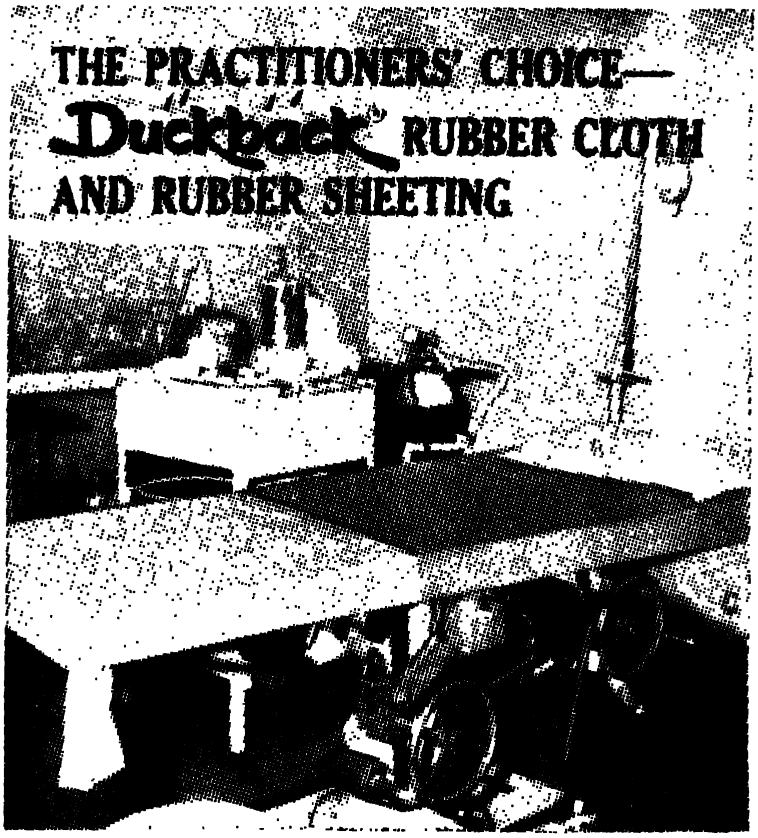

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CALCUTTA
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ORIGINALS AND PAPERS

1

Serum Immunoglobulins in Nephrotic Syndrome

G. N. PILLAI*, P. K. SRIVASTAVA**, P. C. SEN***, B. L. RASTOGI****
K. TRIPATHI*****

[Received for publication February 17, 1981]

Variations in the total and differential serum immunoglobulin levels frequently reflect the underlying disease process .While the observations that immunoglobulin levels are altered in glomerulonephritis (Giangiacomo *et al.*, 1975), it suggests their involvement in the lesion. The present work was undertaken with the aim of estimating the total and differential serum immunoglobulin concentrations in 52 patients of idiopathic nephrotic syndrome (INS). It was further aimed to highlight their relationship with different histopathologic types of nephrotic syndrome.

MATERIAL AND METHOD

Fifty-two patients, fulfilling the criteria of INS, without renal failure according to Hayslett *et al.* (1973), were selected. In addition, 20 age and sex matched healthy individuals were included as controls. Percutaneous renal biopsies, using Vim-Silverman needle, were performed in all patients. After processing, sections cut at 1-2 micron were studied microscopically using conventional and special stains like PAS and PASM (periodic acid silver methanine). Lesions were then classified in terms of minimal lesion, membranous proliferative and mesangiocapillary (membranoproliferative) types.

Serum immunoglobulin levels were determined by single radial diffusion technique of Mancini *et al.* (1965) modified by Fahey and McKelvey (1965).

OBSERVATIONS

Age and Sex—Three fourth of the patients were males and 42% of them belonged to second decade. With advancing age, the incidence showed a diminishing trend.

Histopathology—As outlined in Table 1 the patients were categorised in one of the four histopathologic groups depending upon the appearance of renal biopsies. Majority of the patients fell in the membranous group followed by mesangiocapillary group.

TABLE 1—SHOWING HISTOPATHOLOGICAL GROUPING OF PATIENTS

Histopathological groups	No. of cases
Minimal lesion	9 (17.3%)
Membranous	20 (38.5%)
Proliferative	9 (17.3%)
Mesangiocapillary	14 (26.9%)

Serum immunoglobulins—Concentrations of serum immunoglobulins in different types of nephrotic syndrome *vis-a-vis* normal healthy subjects have been projected in Table 2. Serum levels of IgG, IgA and IGM in controls stood at 1127.00 ± 495.30, 274.00 ± 91.17 and 100.20 ± 44.70 IU/ml. respectively. Irrespective of histologic profile, all patients showed a significant fall in their serum levels of IgG and IgA. However, patients having minimal histological lesion,

---

Institute of Medical Sciences, Banaras Hindu University, Varanasi
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showed a significant increase in their serum IgM levels in addition. No significant correlation could be established between histopathological lesion, proteinuria and immunoglobulins ($p > 0.5$).

TABLE 2—SHOWING SERUM IMMUNOGLOBULINS IN VARIOUS TYPES OF NEPHROTIC SYNDROME

Type of lesion		IgG	IGA	IGM
	Control	1127.00	274.00	100.20
Minimal lesion	Mean	324.44	147.55	141.33
	S.D.	224.00	38.80	51.71
	t	4.512	3.88	2.16
	p	<0.001	<0.001	<0.05
Membranous	Mean	577.00	173.60	103.10
	S.D.	384.45	57.86	46.19
	t	4.735	4.08	0.199
	p	<0.001	<0.001	>0.8
Proliferative	Mean	460.00	180.44	96.00
	S.D.	336.45	72.23	43.06
	t	3.58	2.65	0.233
	p	<0.01	<0.02	>0.7
Mesangio-capillary	Mean	551.42	174.28	102.00
	S.D.	372.98	63.23	42.62
	t	3.59	3.45	0.12
	p	<0.01	<0.01	>0.9

DISCUSSION

Serum concentrations of IgG and IgA were significantly reduced in all patients of INS irrespective of their renal histology. Serum IgM levels, on the other hand, were raised only in patients of minimal lesion group. These observations fall in line with those of Giangiacomo *et al.* (*loc. cit.*).

Longsworth and MacInnes (1940) were the first to observe reduced serum levels of Ig in these patients. Low serum immunoglobulins have been attributed to the high rate of infections prevalent in these patients (Arneil, 1961). The urinary loss of IgG in nephrotics though appreciable, cannot entirely account for its reduced serum level (Peterson and Beggard, 1971).

Patients with minimal lesion of INS also showed decreased levels of serum IgG along with a similar decline in serum IgA but had, instead, raised levels of serum IgM. These findings are indicative of an underlying immunologic derangement in these patients; in view of the fact that a primary humoral antibody response to an immunogen is elicited first by the appearance of antibodies of IgM class (Eisen, 1973), detectable in the serum and by the presence of corresponding antibody producing cells both centrally and peripherally, later to be switched over to IgG class of antibodies and cells correspondingly producing them. A number of experimental studies have confirmed the above sequence of antibody production and a switch over sequence (Davie and Paul, 1974).

This immunologic aberration may be either secondary to nephrotic syndrome or primarily inherited. It is significant to point out in this connection that patients with a hereditary immunodeficiency syndrome, "X-linked immunodeficiency with elevated IgM", suffer from thymic hypoplasia with serum immunoglobulin pattern similar to that seen in minimal lesion of INS (Cooper *et al.*, 1974; Goldman *et al.*, 1967). The parallels between two syndromes, mentioned above, are striking and include a predominance of males, similar age incidence at the time of presentation and a familiar occurrence (White *et al.*, 1970; Badar *et al.*, 1974). The recurrent nature of minimal lesion of INS too is compatible with a persistent inherited immunologic deficit. Though immunoglobulin levels vary in association with other diseases and with drug therapy, those observed in nephrotics are demonstrable even before starting the therapy, long after the stoppage of therapy and even after cessation of proteinuria. Glucocorticoids, for example, depress serum IgG levels but have never been shown to raise IgM (Butler and Rossen, 1973).

SUMMARY

Serum immunoglobulins, IgG and IgA, as compared to controls, were significantly low in all idiopathic nephrotic syndrome (INS) cases irrespective of their histopathologic appearance. Serum IgM levels, on the other hand, were raised in minimal lesion of INS. These immunological aberrations have been discussed.

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2

Colour Blindness Among Students

S. C. REDDY*

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Appreciation of colour is a highly evolved visual function. The faculty by which one can distinguish between different colours and colour tones is known as colour sense. Normal colour vision is of utmost importance for the workers in many occupations requiring colour discrimination, e.g., railway, navigation and tarnsport services, textile industry, paints and chemical factory, printing press and millitary services, etc.

The detection of colour blindness early in life is important because of its relationship to the choice of occupation and it also guides the parents, in planning the future career of their children. Keeping this in mind, a survey of high school children and college students of Ongole, Peddapuram and Kakinada towns, in Andhra Pradesh State was conducted to find out the inicidence of colour blindness and an analysis of the results is presented.

MATERIAL AND METHOD

A total of 3,982 students from 5 high schools including one Girls' School and 2 colleges were examined in a period of 3 years from January 1978 to December 1980. All the students were in the age group of 11-20 years. Ishihara test charts were used for testing the colour blindness. All the students were examined in the same room under day light illumination in the afternoon hours, in their respective schools and colleges. The results were interpreted as per the instructions given in the booklet along with test plates. In all the students with colour defect, for visual acuity, anterior segment examination and ophthalmoscopy were also done to note any other associated eye diseases.

Ishihara test charts method was chosen because (i) it is easier and quickly performed and no special set up is required in mass screening, (ii) familiarity with all the colours is not necessary since the answers given by persons tested are not in terms of colours, (iii) the type of colour defect can be detected with a fair degree of accuracy.

OBSERVATIONS

Out of 1675 males and 2307 females (3982) students examined, 145 (3.64%) showed colour vision defect; males (125) being more affected than females (20).

Of these 145 cases, 123 (84.8%) were having red green deficiency, whereas 22 (15.2%) were suffering from total colour weakness. In 62 cases, colour vision defect was associated with the following abnormalities: defective vision due to refractive error in 43, xerosis in 10, Bitot's spots in 6, heterochromia iridis, naevus of conjunctiva and dermoid outer canthus in one each. Fundus was normal in all the cases. There was no case of blue colour blindness.

Only 2 male students were aware of their colour vision defects. The rest of the students came to know about the defect for the first time. All the students with colour vision defect were explained about the limitations of their entry into certain occupations and advised to choose their future career accordingly.

DISCUSSION

Colour blindness may be congenital or acquired. The congenital defect is an inherited condition. The different types of congenital defects of colour vision encountered are: (I) Monochromatism (total colour blindness) where the person cannot recognise any colour. It is extremely rare and is generally associated with nystagmus and a central scotoma resulting in grossly impaired vision. All colours appear grey, of different brightness. (ii) Dichromatism (partial colour blindness) where the person cannot recognise either red, green or blue colour. These conditions are termed protonopia (red blindness), deuteranopia (green blindness) and tritanopia (blue blindness). Red green blindness is by far the most common whereas blue blindness is very rare.

The incidence of colour blindness has been reported to be about 8% in males and 0.4% in females

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from western countries (Duke Elder, 1964), though different figures have been reported from different countries. The incidence of colour blindness as has been reported by different authors in our country is shown in Table 1.

TABLE 1—SHOWING INCIDENCE OF COLOUR BLINDNESS AS REPORTED BY VARIOUS AUTHORS IN INDIA

Author & Year	Place	Population studied	Total examined	Percentage of colour blindness Male	Female	Both sexes
Sanghvi and Khanolkar (1949)	Bombay	Tribal males	700	3.7	—	—
Vyas *et al.* (1950)	Western India	Tribal males	109	2.75	—	—
Bhatia *et al.* (1955) (cited Deswal and Amin, 1966)	North India	Males	973	4.32	—	—
Iyer and Ramamurthy (1956)	Madras	Males & females	282	4.5	0.0	—
Daonamraju and Meerakhan (1960)	Andhra Pradesh	Students		7.53	0.36	—
Mehra (1963)	Benaras	Males & females	1500	3.6	1.04	2.8
Deswal and Amin (1966)	Baroda	Students	1000	5.6	0.6	3.1
Krishnamurthy (1966)	Madurai	Students	1923	—	—	2.23
Bhargava and Rajani (1968)	Bhopal	Random	—	5.86	0.8	—
Misra *et, al.* (1968)	Jamshedpur	Females	13743	1.4	0.0	—
Mahapatra (1976)	Rourkela	Students	870	5.3	1.05	3.9
Present study (1980)	Andhra Pradesh	Students	3982	7.16	1.08	3.64

In the present study the incidence of colour blindness in males (7.16%) is higher than the figures reported by Deswal and Amin (1966) and Mahapatra (1976), but lower than the figure reported by Dronamraju and Meerakhan (1960). In females (1.08%) it is higher than the figures reported by Dronamraju and Meerakhan (*loc. cit.*), Deswal and Amin (*loc. cit.*) and Mahapatra (*loc. cit.*). The incidence of colour vision defect in both sexes together (3.64%) observed in the present study is higher than the figures reported among the student population by Krishnamurthy (1966) and Deswal and Amin (*loc. cit.*), but lower than reported by Mahapatra (*loc. cit.*). All the cases of colour blindness in the present study were of congenital origin.

Red-green deficiency was the most common type (84.8%) detected. All the 22 students with total colour weakness were able to tell the primary colours correctly when the individual colours were shown, and none of them had nystagmus or central scotoma; thereby indicating that they had only total colour weakness and not colour blindness.

Defective vision was associated in 29.6% (43) of colour blind cases. The visual acuity was between 6/9 and 6/18 in 28 cases, between 6/24 and 6/60 in 12, and in 3 it was less than 6/60. The latter 3 students were already wearing myopic glasses. Misra *et al.* (1968) also reported similar incidence of defective vision (28.6%) in 192 colour blind cases. The diminution of vision was more in total colour weakness cases than in red-green deficiency cases.

Vitamin A deficiency was observed in 16 students with colour vision defect. All of them had normal visual acuity. Reddy and Vijayalaxmi (1977) have shown that colour vision was normal in children with vitamin A deficiency, and stated that vitamin A deficiency *per se* does not affect colour vision. Vitamin A deficiency was only co-incidental.

Colour blindness was associated with congenital ocular anomalies in 3 cases. All of them had total colour weakness and fundus was normal in all the cases.

Colour blind individuals do not give rise to any social problems except their unconventional taste in the clothes and interior decoration. But colour blinds, unaware of the defect and employed in occupations where colour discrimination is essential, can bring hazards and economic loss to themselves and to others. Since red and green colours have been accepted as codes in signalling internationally, it is likely that any person confusing these colours is liable to commit serious accidents. For these reasons screening for colour vision defect must be done as a part of school health check up or as a part of medical check up in the colleges, so that suitable vocation for those found defective may be planned to avoid frustration in later life.

SUMMARY

In a survey of 3, 982 students for colour blindness, tested with Ishihara charts, 145 students (3.64%) showed colour vision defects. The incidence was 7.16% in males and 1.08% in females. In 29.6% of colour blind cases, there was associated defective

vision. Majority of the colour blind (84.8%) were red-green deficiency cases.

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CASE NOTES

1

Unusual Presentation of Pyomyositis

M. A. RAZAQUE*

Pyomyositis or pyogenic involvement of the muscles may superficially be confused with a variety of conditions like dermatomyositis, osteomyelitis, etc. While certain characteristic clinical presentation and natural history may enable a physician to make an early diagnosis of pyomyositis itself it may be misdiagnosed when the presentation is fever, cough and haemoptysis. The aim of the present paper is to call attention to this condition and to report a case of pyomyositis who presented primarily with chest symptoms.

CASE REPORT

A 30-year-old male was admitted to the chest ward, Regional Medical College, Imphal with complaints of high fever, cough with blood tinged sputum and pain on the right thigh of 2 weeks' duration. He could not walk at the time of admission. There was no history of trauma.

Examination—Systemic examination revealed an acutely ill but well-built adult male having a temperature of 102.4°F. His pulse rate was 110/minute and blood pressure was 120/84 mm. Hg. There was no lymphadenopathy, jaundice, cyanosis, clubbing or oedema. There were fine crepitations scattered all over upper and mid zones of both the lungs.

Local examination revealed a swelling on the right thigh which extended downward into the knee. The swelling was woody on palpation and the overlying skin was shiny, warm and tender but non-fluctuating and poorly localised.

Investigations—Haemoglobin was 11 g.%. Total WBC was 12,400/c.mm. with 72% polymorphs. The ESR was 66 mm. at first hour. Sputum for AFB was negative on repeated examinations but Gram's stain showed Gram positive cocci. Culture of the sputum reported growth of *Staphylococcus aureus* sensitive to nitrofurantoin, gentamicin and demethylchlortetracycline. X-ray of the chest showed small multiple opacities with fluid level scattered over both the lung fields (Fig. 1). X-ray of the right thigh did not show evidence of any underlying bony lesion. A diagnosis of pulmonary tuberculosis with osteomyelitis was considered before x-ray was taken which was changed to staphylococcal lung abscess with pyomyositis based on x ray findings.

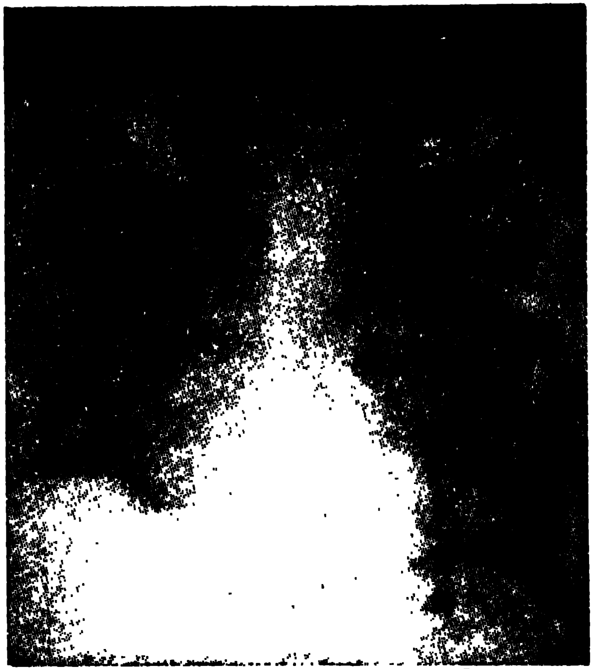

FIG. 1—SHOWING MULTIPLE LUNG ABSCESSES ON CHEST X-RAY

Management—About 500 ml. of foul smelling pus was aspirated from the right thigh. On culture of the pus *Staphylococcus aureus* sensitive to the drugs mentioned above was grown. The patient received intramuscular gentamicin, 80 mg., twice a day for 5 days followed by demethylchlortetracycline. 300 mg. twice a day for 15 days. There was dramatic improvement. The swelling gradually started localising. By the 2nd week after admission the lung lesions cleared and the swelling was much reduced. He made a complete recovery and subsequent follow up showed no recurrence.

DISCUSSION

Staphylococcus aureus is known to produce abscess in a variety of organs after sustained bacteraemia. Muscle, however, seems to be inherently resistent to staphylococcal infection although pyomyositis is responsible for 1 to 2% of surgical admission to hospital in some tropical countries (Levin *et al.*, 1971). Multiple muscle abscesses are not uncommon (30 to 40%) thereby suggesting an initiating staphylococcal bacteraemia but positive blood cultures have been obtained in less than 5% of cases indicating that bacteraemia occurs early in the illness and is not sustained (Levin *et al.*, *loc. cit.*). The site of entry is uncertain but dissemination takes place by the blood stream and the lymphatics and lymph nodes show no sign of inflammation (Manson-Bhar, 1972). Metastatic infection in tissues other than muscles is uncommon but do occasionally occur (Cluff et al., 1968) as has occurred in the present case, who had multiple staphylococcal lung abscesses. Fever, leucocytosis and poorly localised tenderness led to a consideration of a large number of diagnostic possibilities including thrombophlebitis, osteomyelitis and arthritis as well as polymyositis, vasculitis and acute rhematic fever.

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Surgical drainage of the abscess thigh and appropriate antibiotic administration is the mainstay of treatment of pyomyositis with lung abscesses.

SUMMARY

A case of pyomyositis thigh presenting with fever, cough and haemoptysis due to associated staphylococcal lung abscess is presented. The patient recovertd after administration of gentamicin and demethylchlortetracycline.

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2

Epignathus

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Epignathus, a teratomatous growth in the basocranial region, is a rare tumour (Wynn *et al.*, 1956). In recent years, both from abroad and India, mostly solitary cases are reported (Oschner and Ayers, 1951; Dohlman and Sjovall, 1953; Sen, 1963; Solle, 1965; Keswani *et al.*, 1968; Berry *et al.*, 1969; Bennet, 1970; Kashiwal, 1973; Chander, 1974; Bhargava and Singh, 1977; Paul and Arora, 1977). In most of the instances this lesion either interfered with normal labour or after surgical removal of it the patient did not survive for long. As this lesion is rarely encountered in clinical practise, this has prompted to report a similar case having had favourable result following surgery.

CASE REPORT

T.R., a 2-year-old, Hindu, female child was brought to the out patient department of Chittaranjan Hospital, Calcutta, in January 1976, as she was having gradually increasing difficulty in deglutition. For about three months her parents noted a solid mass within her mouth. Although the precise onset of this mass remained unnoticed, however, the child was having variable degrees of feeding difficulty since birth. Recent rapidity of growth of the mass alarmed her parents who decided to seek medical help.

Examination The child, of average built for her age, was illnourished ar anaemic. Beside scattered ronchi in both the lungs, systemic examination was noncontributary. Within the oral cavity a firm, pinkish mass adherent to the palatal mucosa was seen (Fig. 1). Adherence was by a small stalk almost at the midline of the soft palate. The mass extending over the vault of the palate had a smooth surface and did not bleed on touch. Routine examinations of blood, stool and urine yeilded normal results except low haemoglobin concentration (8 g.%). Except for the pedunculated oral mass, examinations of ear, nose and throat did not reveal any other lesions. Involvement of the sinuses by the intra-oral mass was not present as x-ray of PNS was normal. X-ray of the skull and spine did exclude congenital deformitics therein.

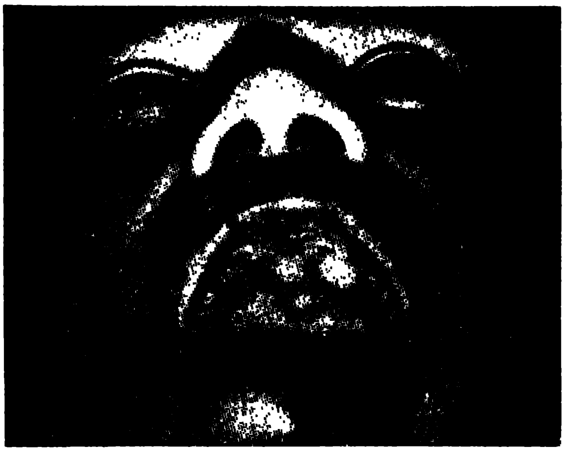

FIG. 1—SHOWING THE INTRA-ORAL LOBULATED MASS

Observations—Because of rapid growth in recent times removal of the entire mass without prior biopsy study was considered to be a judicious approach. Under general anaesthesia it was removed without much bleeding by transfixing its easily manoeuvrable stalk.

The gross features of the excised mass, was pinkisk, lobulated and measured 7 cm. by 5 cm. It was firm and on being cut a greyish white surface having scattered tiny cystic spots without obvious haemorrhagic or necrotic areas was seen.

Tissues from random areas were fixed, processed and sectioned in routine manner for histological examination. Multiple sections were stained by haematoxylin and eosin. Haphazardly arranged varied tissue elements in irregular proportion was the presenting feature. Cystic spaces of varying size were irregularly lined by stratified, pseudostratified or mucus secreting columner epithelium (Fig. 2, H.&E., x 100). Muscle, neural and cartilaginous tissues along with glands (racemose in type), were liberally present. Solid areas contained mostly fibrocollagenous tissue with scattered calcified spots therein (Fig. 3, H.&E., x 100). Histologically this mass was thus diagnosed to be a benign teratoma.

The child had a speedy uncomplicated recovery and her deglutition difficulty did not persist. She was subsequently brought for periodic check-up. She keeps a fair health and

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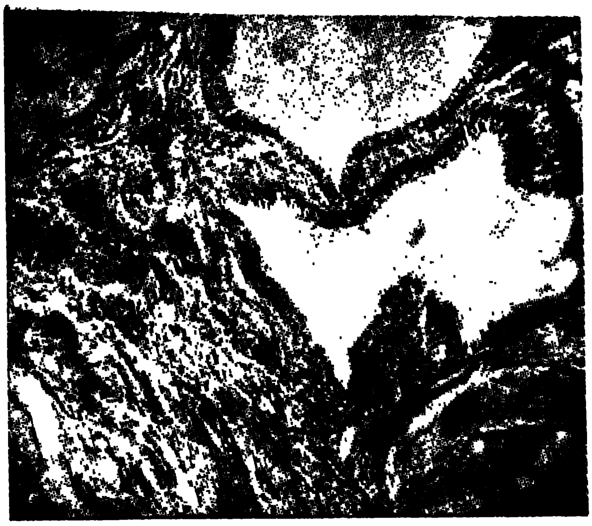

FIG. 2—SHOWING CYSTIC SPACES LINED BY STRAIFIED, PSEUDO-STRATIFIED AND MUCUS SECRETING COLUMNAR EPITHELIUM, FIBROUS TISSUE, MUSCLE AND CARTILAGINOUS TISSUE (LEFT TOP CORNER) IN MICROPHOTOGRAPH

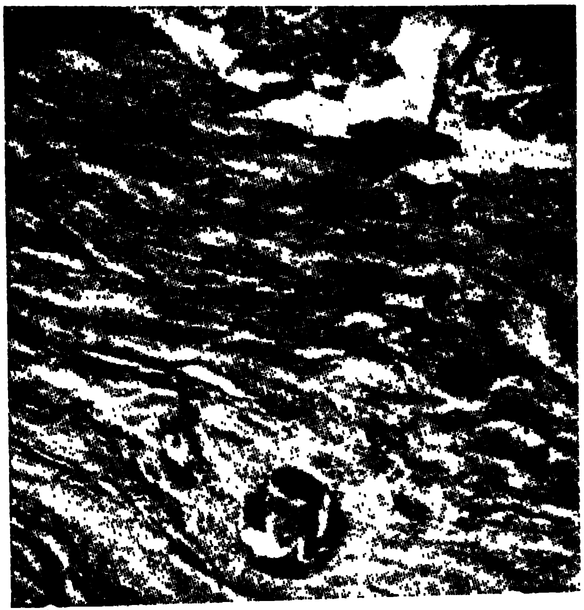

FIG. 3—SHOWING CALCIFIED SPOTS AMIDST DENSE FIBROUS TISSUE IN MICROPHOTOGRAPH

all her developmental milestones are normal. Neither the intra-oral growth has recurred nor is there development of a similar growth elsewhere in her body for last 5 years.

DISCUSSION

Teratomas occur infrequently in mediastinum, retroperitoneal tissues, neck and cranial cavity, besides frequent involvement of gonads and sacrococcigeal region. Teratomas have been occasionally encountered in the sinuses and nasopharynx of infants and children, a large majority of these being benign (Boies and Harris, 1965). Large benign cystic polypoid masses projecting into the oral cavity from nasopharyngeal region, having distinctive features, are encountered from time to time (Berry *et al., loc. cit.*; Tuson, 1970). When this mass, containing tissues of the kind foreign to the tissue of site of origin, is located in the mouth it is termed an epignathus (Wynn *et al., loc. cit.*).

Epignathus is often classified (Ewings, 1940, cited by Tuson, *loc. cit.*) into (a) dermoid teratoid tumour or (b) true epignathus,—its diagnosis being based on finding the derivatives of all the three germ layers, some of which must be foreign to the site of origin (Willis, 1962). In the present case beside abundant fibrous, cartilaginous and calcified tissues, racemose glands and respiratory mucosa were seen. In contrast to hamartoma teratomas are true neoplasms having an autonomous growth rate. Hamartomas are fairly common nasopharyngeal lesion; about 100 cases were on record till 1969 (Birt and Knight-Jones, 1969). But true teratoma or epignathus are extremely rare at basocranial site (Berry *et al., loc. cit.*) and so every new case needs thorough examinatiin (Willis, *loc. cit.*).

A large epignathus arising from the palate or sphenoid bone presenting as a protruding mass from the mouth may often endanger life or it may remain as harmless and easily removable mass. But some of these tumours, being expansive in nature, grow rapidly causing death even in early childhood, either interfering in deglutition or respiration. During life this mass often poses problems for emergency orotracheal or nasotracheal intubation (Paul and Arora, *loc. cit.*). The case presented by Chander (*loc. cit.*) even causel obstructed labour. However, Bhargava and Singh (*loc. cit.*) observed that due to loose attachment of this mass to the site of origin in general, removal is usually complete, ensuring a better prognosis. In this case also the mass causing difficulty in deglutition was successfully removed en masse and the child survived and developed normally following surgery.

SUMMARY

A case of epignathus of three months duration in an infant aged 2 years having difficulty during feeding in early life and difficulties in deglutition is presented. All such difficulties were removed after surgical removal of the tumour which had a stalk and bone involvement was absent. The child remains well 5 years after surgery.

ACKNOWLEDGMENT

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3

Cystic Disease of the Liver

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V. RAINA*****

Congenital cystic abnormalities occur throughout the ducts of the biliary system from the smallest branches to the common bile duct. The cystic lesions which arise from the smaller intrahepatic ducts and which are confined to the liver may remain asymptomatic for many years. A rare condition, congenital hepatic fibrosis, may accompany cystic dilatation of intrahepatic ducts, but often leads to portal hypertension early in life. The incidence of associated congenital anomalies is increased in all these conditions. Polycystic disease of the kidney is an accompanying feature in 50% of the patients with polycystic disease of the liver (Melnick, 1955). In such patients the presenting symptoms are usually renal.

Three cases of polycystic disease of the liver were encountered recently which are worth recording for the following reasons :

(i) The presenting features in all these cases were related to polycystic liver. (ii) All the three cases were associated with polycystic disease of the kidneys but there were no signs or symptoms attributable to kidneys.

CASE REPORTS

CASE 1:

A 45-year-old female presented with lump in the epigastrium which was gradually increasing in size for the last 5 years. The increase in size had been more rapid for the last 6 months and it was associated with a dull continuous pain in the upper abdomen. She had no other complaint.

Examination—On examination, the lump moved with respiration. It was occupying the epigastrium and right hypochondrium and measured 8″ x 6″. It was nodular and continuous with the liver. Spleen and kidneys were not palpable.

Investigations—Plain x-ray abdomen showed a soft tissue mass in the upper abdomen. Barium meal x-ray revealed a normal oesophagus and an extraneous mass indenting the lesser curvature with impression on bulb and loop. Liver scan I^{131} Rose-Bengal showed an enlarged liver with non-functioning areas in the left and right lobes. The liver function tests were within normal limits. Casoni's test was positive. No other investigation revealed any abnormality. Clinically the case was diagnosed as hydatid cyst liver.

Surgery—On laparotomy the liver was found to be enlarged and studded with cysts of varying sizes measuring from 2 mm. to 3.5 cm. in diameter. The left lobe was involved more extensively than the right lobe. These cysts contained serocs fluid. The kidneys were explored and both were found to be polycystic. The pancreas did not show any cysts. A biopsy was taken from the cystic area in the liver.

CASE 2:

A 36-year-old female presented with a swelling in the right hypochondrium of 3 weeks duration. It was associated with a dull pain for one week. There was no other significant history.

Examination—On examination the lump was nodular and firm in consistency. It was continuous with the liver and occupied the right hypochondrium, right lumbar and right iliac regions and part of the epigastrium. It was non-tender.

Investigations—Plain x-ray abdomen showed a soft tissue mass in the right hypochondrium and epigastrium and extending onto the right iliac fossa. Laboratory investigations including the liver function tests were found to be within the normal range.

Surgery—On laparotomy, the liver was found to be enlarged and cystic. Right lobe involvement was more extensive than that of the left lobe. Cysts varied in size from a few mm. to 3 cm. in diameter and contained serous fluid. Some cysts were filled with brown coloured fluid. Biopsy was taken from the cystic area in the liver. Later on, both kidneys were found to be polycystic on IVP.

CASE 3:

A 50-year-old female presented with complaints of pain abdomen, loss of weight and distension of abdomen of 2 weeks duration. Pain abdomen was more in right hypochondrium and had no relation to food.

Examination—On examination pallor was present. Liver was enlarged 10 cm. below the costal margin. It was firm to hard, tender and nodular. Spleen was just palpable. Kidneys were not palpable. There was free fluid in the abdomen.

Investigations—X-ray abdomen showed enlarged liver shadow. Liver function tests were within normal limits. Hepatic scan showed a cold area in the left lobe.

Clinically she was diagnosed as a case of metastatic deposits liver with (?) primary in the stomach.

Surgery—A needle liver biopsy was dose. It showed increased portal fibrosis with cholangitis. A week later exploratory laparotomy was done. It was found that liver was enlarged and polycystic. Left lobe was more extensively involved with cysts of various sizes up to 4 cm. in diameter.

These cysts contained serous fluid. Some of them contained turbid fluid. There was no growth in the gastro-intestinal tract. The patient improved with antibiotic therapy. Infusion pyologram and IVP showed both the kidneys to be polycystic with impairment of function.

Histopathology—The microscopic features (Fig. 1, H.&E., x 65) were similar in the three cases. The lobular architecture was maintained. There were cysts of varying sizes lined by cuboidal epithelium. Larger cysts were lined by flattened epithelium. These cysts were separated by islands of liver tissue including portal tracts. All these cases were diagnosed as polycystic disease of the liver. In case 3, in

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Department of Pathology, Maulana Azad Medical College, New Delhi
* M.D., Demonstrator, At present : Lecturer
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**** M.D., F.R.C.Path., Professor
***** M.D., Associate Professor

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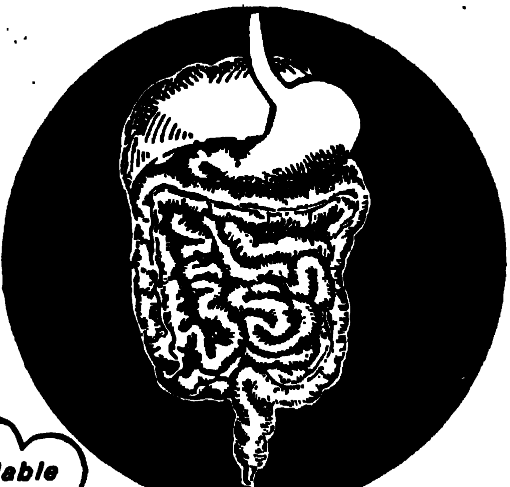

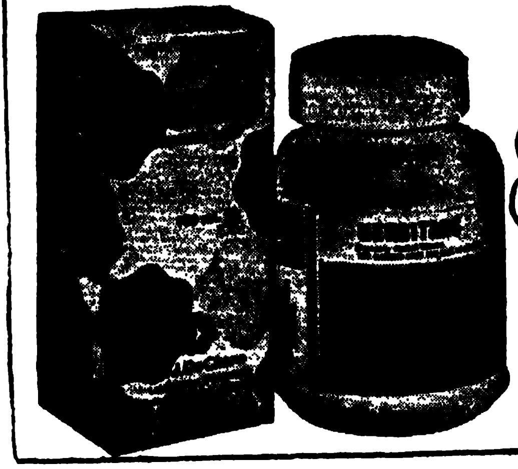

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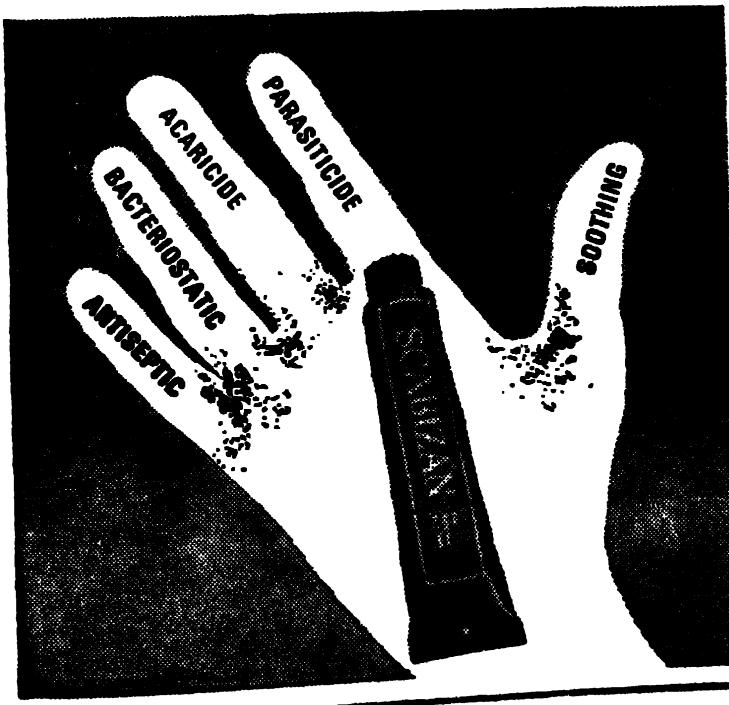

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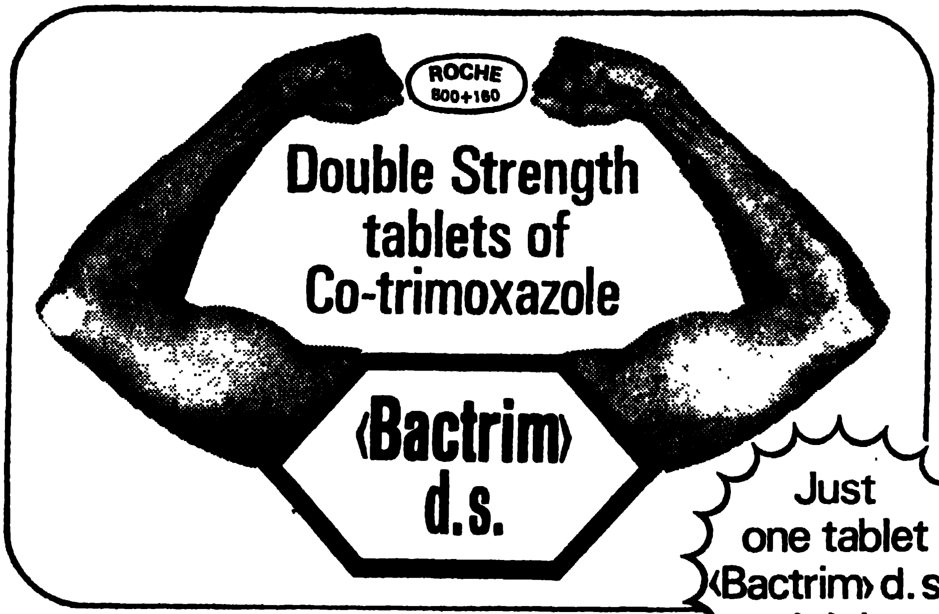

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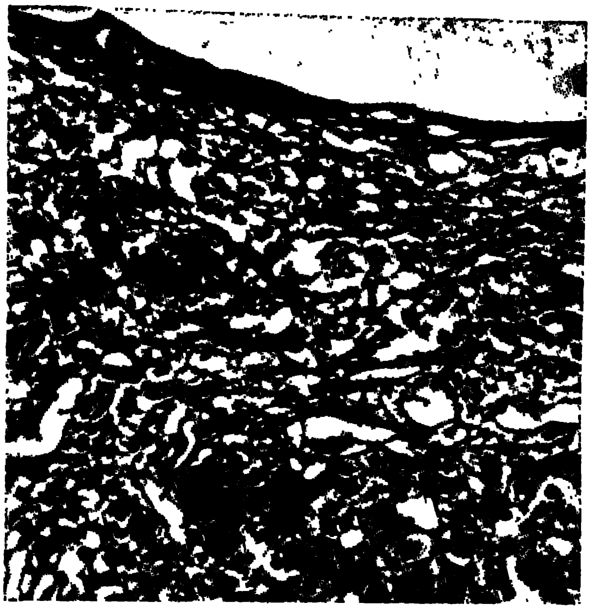

FIG. 1- SHOWING CYSTS LINED BY FLATTENED EPITHELIUM WITH INTERVENING LIVER PARENCHYMA AND PORTAL TRACTS, IN MICROPHOTOGRAPH

addition to the above features, multiple micro abscesses in the liver parenchyma were also observed.

DISCUSSION

It is well established that the majority of the patients with polycystic disease of the liver have no hepatic symptoms and the lesion may be an incidental finding at autopsy. In some cases, the patient presents with some other disease and during the long follow up period, cystic disease of the liver is discovered. In other cases of polycystic liver, hepatic function is well preserved.

Rall and Odel (1949), in their report of 69 patients with this lesion did not observe any symptoms referable to liver. Comfort *et al.* (1952) found that only 10 cases presented with a lump in the upper abdomen. Most of these cases were in the 4th or 5th decade. In others it was an incidental finding. In ten of these cases the symptomatology was attributable to polycystic kidneys. Melnick (*loc. cit.*) observed that out of 70 cases, only one presented with symp toms referable to liver. Longmire *et al.* (1971) have reported polycystic disease of the liver in 23 cases of which half were between 40 and 60 years of age. Eleven cases had symptomatology attributable to polycystic disease of the kidneys and the remaining 12 cases presented with symptoms of unrelated clinical condition like malignancy, rupture of aneurysms, etc. In these cases cystic liver was discovered at autopsy or on operation as an incidental finding. Unlike the above series, the present series of three cases presented with symptomatology referable to liver such as mass and pain in the upper abdomen.

Davies (1937) recorded polycystic disease of the kidneys in 56% of the cases of polycystic liver while Melnick (*loc. cit.*) found it in 50% of the cases. In the series of Comfort *et al.* (*loc. cit.*), 13 cases of polycystic liver were found to be associated with polycystic kidneys, in 5 of them the kidneys were palpable and 11 patients had hypertension. Although the kidneys were involved in all the 3 cases in the present series, but these did not cause any symptomatology.

SUMMARY

Three cases of polycystic disease of the liver are reported. The relevant literature is briefly reviewed.

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NOTES AND NEWS

Journal of the Gujarat Research Society

The management of the above journal have invited original articles and papers for their Medical Number. Articles should conform to Vancouver style and should reach The Editor, *Journal of the Gujarat Research Society*, Junction of 16th Road and Ramakrishna Mission Marg, Khar, Bombay-400 052 by *June 30, 1982*.

Postgraduate Diploma Course in Health Services Administration at Leeds University

The University of Leeds, Nuffield Centre for Health Services Studies, UK, have announced its one-year postgraduate diploma course in Health Services Administration for experienced personnel from developing and newly industrialised countries. The course includes: Social policy, community health care, management in organisations, comparative health care including health planning, health economics and medical sociology. Further details can be obtained from: The Administrative Secretary, Postgraduate Diploma Courses in Health Services Administration, Nuffield Centre for Health Services Studies, University of Leeds, 71/75, Clarendon Road, Leeds, LS 2—9 PL, UK.

CORRESPONDENCE

The Editor is not responsible for the views expressed by correspondents

Resurgence of *Plasmodium falciparum* Malaria in Calcutta

SIR.—But for a few imported cases, *Plasmodium falciparum* malaria was considered to be a rare occurrence in Calcutta in the last decade. According to Hati and Mukhopadhyay (1980) in Calcutta only 10 (0.1%) imported cases of *Pl. falciparum* have been recorded during 1971-1978. Recently in October-November, 1981, 12 cases of *Pl. falciparum* malaria were recorded in the Calcutta School of Tropical Medicine. The typical febrile paroxysm of *Pl. falciparum* malaria was noticeably absent and no complication was observed in any of these cases. The reasons for this altered clinical pattern are not known. The presence of parasitaemia without overt clinical symptoms may not be immediately dangerous to the patient himself, and he may not seek earlier treatment, but it may be dangerous to others for fear of transmission. Ten of these cases were the residents of the staff quarters of Medical College, Calcutta. They had no history of going outside in recent past, indicating indigenous transmission, which requires serious attention. The eleventh patient was a lady who came from a village of Haryana and on the 10th day of her arrival in Calcutta, she suffered from *Pl. falciparum* malaria, suggesting that this is an imported case. The whereabouts of the last patient are not definitely known. This also points out that as population exchange is going on in this metropolis, there is every possibility of import of such cases and not all such cases are detected and treated, ultimately posing danger to the society. All the cases were successfully treated with chloroquine (600 mg. stat), whereafter the schizonts were killed within 2 days but male and female gametocytes 2-15/100 leucocytes were demonstrated in the peripheral blood up to 13 days of treatment in 4 patients examined thoroughly. This is also a potential danger from the epidemiological point of view, because if these patients were simultaneously not treated with gametocidal drugs (such as primaquine in the recommended dosage of 15 mg./day in 2 divided doses for 5 consecutive days), the susceptible mosquito vector, which is present in Calcutta (Mukhopadhyay and Hati, 1978) and which can support the development of sporozoites up to 37.3% (Roy, 1943) would be able to transmit the disease even after the treatment of the patient with chloroquine. However, the recent data on host parasite and vector parasite relationship are lacking, which require effective probe. Further, these cases may just be the forerunners and it is not known actually how many of them are already in the queue. This is probably not a good omen to the people of Calcutta.

We are, etc.,

Carmichael Hospital
for
Tropical Diseases, Calcutta

(MRS.) ANITA DUTTA, M.D. (CAL.)
(MRS.) SUMANA SENGUPTA, M.B.B.S., D.C.P.

School of Tropical
Medicine,
Calcutta

K. K. MALLICK, D.T.M.&H. (LOND.), M.A.M.S. (INDIA), F.R.C.P.(LOND.)

A. K. HATI, M.B.B.S., PH.D. (CAL.)

Barasat Sadar
Hospital, 24-Parganas, W.B.

S. B. MOITRA, M.D.(CAL.)

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Production of Cryoprecipitate in Blood Bottles

SIR,—Lovric *et al.* (1980) reported a method for production of blood components for developing countries. However, a significant cost of production is the disposable plastic pack.

If centrifugation and snap freezing facilities are available (–70°C to –50°C), we have found that cryoprecipitate of similar quality to our routine cryoprecipitate can be produced using ordinary blood bottles.

Twenty four donations of plasma were collected into 12 (group identical) pools of two, the pool volumes divided equally into the third pack of quad pack system (Lovric *et al.*, 1977) and a blood bottle. The pack and the bottle were then immersed in dry-ice cooled alcohol (—60°C), until the plasma was frozen. Using a modified rocker on our thawing baths, the bottles and packs of frozen plasma were then processed in the normal way (Margolis and Rhoades, 1979). Centrifugation improved the sedimentation of the cryoprecipitate in the bottles. All the cryosupernate was removed from both the packs and bottles and the cryoprecipitate reconstituted in 20 ml. of buffered saline and assayed.

The mean recoveries in units of Factor VIII per litre of original plasma were: bags; 355; bottles; 374 or 107% of that recovered in the bags. These results are just below what is satisfactory for routine production in Sydney, and the volume of production is about halved due to the bulkiness of the bottles. Some of the cryo's in bottles were lyophilised. The reconstituted cryoprecipitate yielded 80% activity, marginally lower than recoveries for our concentrate (approximately 90%), but still acceptable.

The relative results indicate that production of cryoprecipitate in bottles is a viable and cheaper alternative to plastic packs.

We are, etc.,

Red Cross Blood Transfusion Service
153, Clarence St.,
Sydney, N.S.W. 2000.

PHILIP RHOADES

National Blood Centre,
Thai Red Cross Society,
Henri Dunant Rd.,
Bangkok, 5 Thailand.

AROONRAT CHIRATTHITIAMPHYYONG

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Vaginal Agenesis and Gonads

SIR,—In an article on the above subject (*J. Indian M. A.* **77**·105, 1981) the authors have quoted Chakravarty *et al.* (1977), on page 107, as observing that with complete absence of vagina "there is no functioning uterus."

I would like to mention about a case of total absence of vagina on whom I have operated. This girl, has now delivered a full grown normal child.

I am, etc.,

Plastic Surgeon
Mariganj, Khandra.

AKSHAYA KUMAR VERMA

Health Problems of Hill Tribes

SIR,—It is a known fact that the health of our rural population is far from satisfactory, which is also true with regards to health of our tribal people. With the help of the Lions Club, we made a small survey initially, of all the tribal areas near Thalavadi and ultimately chose Hassanur with a population of about 10,000. This tribal area is situated about 35 km. from Sathyamangalam at an altitude of about 3000 feet in the midst of thick forest. Wild animals abound in plenty in this region. About 60 tiny hamlets are scattered in this mountain area. These hamlets are not connected by roads.

The tribes are: 1. Solagans, 2. Irulas, 3. Bodagas. 4. Kurubas and 5. Olayas. They maintain their identity very distinctly. It is easily possible to identify them by their build, dress and dialect. They are the off-shoots of Hindus. Consanguineous marriage is the rule. There is absolute bar for marriage from others and there is no intertribal marriage either.

There are about 50 to 100 hutments in a hamlet. Each hut is a small thatched shelter with very little space, and sharing the place along with the family members and all their belongings. All animals live together and tribes make no distinction between animal or human beings. For 3 months a year they are engaged in cultivation. The rest of the period they try to work for the forest department for meagre wages.

The staple diet consists of mainly ragi, chollam and kambu. They have occassional recourse to the meat of wild boar or birds.

They use water from a nearby lake or stream and they seem to use very little of it for either washing or bathing. They take bath 3 or 4 times in a year i.e., on a festival day and there is nothing like washing their clothes.

During the year 1980-1981, we had examined 6,450 persons. Almost all children and about 60% of adults have scabies. Protein-calorie malnutrition along with multiple vitamin deficiency were obvious in the majority of the people. There were about 3,270 people with all grades of nutritional insufficiency. Most of them were women. Typical iron deficiency anaemia was present in quite a few. Vitamin A deficiency with night blindness was seen in 163 children, 52 adult females and 27 adult males. Xeropthalmia and Bitot's spots were found in all these cases. Angular stomatitis, pellagra like skin changes and diarrhoeas (bacterial and amoebic) were common in adults.

Bilateral obvious tuberculosis was made out in about 70 persons. Leprosy was detected in a total number of 541; males 278, females 225, children 38. Venereal disease could be identified in 67 (42 males, 25 females). Discharge from ear with SOM was made in 112 persons.

Most of these people were tribal who belong to the tribes enumerated who live with nature's grandeur do not seem most of the tribals are quite ignorant. It is a pity that very few only are able bodied in this group. Their disease pattern is like any of our most backward village. They have security for food and shelter. They merely exist and silently suffer the pangs of poverty and ignorance.

With the help of Lions Club a free medical aid and health check up was undertaken but the prolem is too big and beyond the capacity of club to manage.

I am, etc.,

Mysore Trunk Road
Sathyamangalam-638401

P. THANGAVELU, M.B.B.S.

REVIEW

Medicine aide memoire series—By Dr. N. K. Majumdar, 2nd edition, M. M. Publications, Calcutta, December 1981, 22 cm. x 13.5 cm., pp. x+214, Rs. 20.00.

Apart from the errata mentioned, there is not a single page free from spelling mistakes with persistent wrong spelling for the same word. There is no uniformity in typography. Use of non-standard abbreviations (e.g., tbc for tuberculosis) will give a wrong impression to the students. Use of the term gastro-intestinal system is questionable, so is the continued use of—"auricle". Ethionamide in the dosage of 500 g. twice daily may have serious consequences. Dosage in grains should have been avoided. In the diagnosis of acute miliary tuberculosis while liver biopsy has been mentioned, skiagram chest has found no place. Clubbing as a presenting feature in bronchial carcinoma, trauma as a cause of pleural effusion and jaundice in Weil's disease are gross ommissions. Is internal cardiac massage a standard treatment for cardiac arrest in acute myocardial infarction? Cerebral malaria causing convulsions is certainly not an extracranial cause. Enterobiasis has not been included in the book. Classification of nephritis is confusing.

It appears that class notes have been hurriedly printed in a book form with careless and haphazard editing. Wrong spellings, use of non-standard abbreviations, mixing up of causes with signs and symptoms would be confusing for undergraduate students. More thorough revision would be desirable in future editions to make the book useful to those for whom it is intended.

L. K. GANGULI

OBITUARIES

Dr. N. K. Misra

Death took place following a heart attack on 28-4-1982 at Patna of Dr. N. K. Misra, Vice-President of IMA (Headquarters) and an outstanding organiser of the Association in Bihar. Dr. Misra took his MBBS degree from Patna in 1950 and qualified for the DARCP&S (England) in 1956 and the MS in 1960. He joined the Anaesthesiology Department of Patna Medical College and later became Professor and Head of the Department. He also rendered distinguished service to his speciality in the capacity of Hony. General Secretary of the Indian Society of Anaesthesiologists from 1973 to 1979. He was elected President of the Society in 1980.

DR. N. K. MISRA

Dr. Misra moved up to his eminent position in IMA through years of sustained work at different tiers of the organisation. A life-member of the Association, he steered the Patna Branch as Honorary Secretary from 1962 to 1967 and shouldered the responsibility of Organising Secretary for the Silver Jubilee Session of Bihar State Branch of IMA in 1965. He was State Secretary of IMA for 3 successive terms beginning from 1969 70. During his third term of office (1971-72) he earned high appreciation from the Governor of Bihar and the Prime Minister of India for his untiring services in the cause of Bangla Desh refugees. He was elected Hony. Secretary of the Medical Relief Committee jointly sponsored on this occassion by Indian Red Cross Society and IMA Bihar State Branch.

Dr. Misra was elected Vice-President of the Bihar State Branch for 1972-73 and 1973 74 and President of the State Branch for 1976-77, besides continuing as a member of the State Council and State Working Committee since 1962. As a prominent and vocal member of the Central

Working Committee of IMA and a member of the Medical Education Standing Committee from 1975 to 1981 he made valuable contributions to their deliberations.

In Dr. Misra's death the IMA has lost one of its ablest organisers and a promising leader as well.

Dr. Harisadhan Datta

Dr. Harisadhan Datta, a distinguished academician and physician and till recently Hony. Editor of IMA's health journal, '*Your Health*, breathed his last on 30-4-1982 following a brief illness. Born on 25-12-1918 Dr. Datta graduated from R. G. Kar Medical College in 1944 winning several scholarships, medals and certificates of honour. He took his M.D. degree from Calcutta University in 1954. Dr. Datta's long professional life centred mainly round one or the other unit of the well-known hospital group in South Calcutta bearing the hallowed memory of Deshbandhu Chittaranjan Das.

DR. HARISADHAN DATTA

Between 1946 and 1978 Dr. Datta served variously as pathologist and consultant physician in Chittaranjan Seva Sadan, as officer-in-charge of Well Baby Clinic and as senior visiting physician in Chittaranjan Sishu Sadan and as physician in charge and Head of the Department of Chemotherapy in Chittaranjan Cancer Hospital. He was for many years a teacher in DCH and DMCW courses and was lately an extra-mural lecturer in MD in Paediatrics and Radiotherapy of the Calcutta University. He was also an examiner of MD theses in Paediatrics and Chest Diseases. He served as Reader in Chittaranjan Cancer Hospital and Associate Professor in Chittaranjan Seva Sadan College of Obstetrics and Gynaecology.

In the field of research also Dr. Datta made his mark while working for various periods with ICMR, Sandoz Ltd. and Ranbaxy Laboratories as their research officer. He had published as many as 31 papers in different Indian and foreign journals.

Dr. Datta, who served IMA through a rural branch in Hooghly district of West Bengal—the Tarakeswar Branch—had been its President since 1977. He took profound interest in promoting the cause of maternity and child welfare in and around Tarakeswar. He tried to give shape to some of his constructive ideas in this field through the Taraknath Maternity and Child Welfare Centre (Tarakeswar Estate Hospital Well Baby Clinic) and Nivedita Matri-O-Shishu Mangal Kendra, of both of which he was founder-director. The other cause which claimed his devoted attention was the Cancer Control Programme. He played a significant role in the programme as President of the Indian Association of Chemotherapists since 1979 and by participating in many national and international symposia and panel discussions on Chemotherapy of Cancer.

Dr. Datta was elected Editor of '*Your Health*' for 1980-81 and was reelected for 1981-82. During this brief tenure he made considerable efforts for improving the journal in spite of his failing health. He is survived by his wife, only son and two daughters.

Dr. Atma Ram Sharma

Dr. Atma Ram Sharma, a member of the Naya Nangal Branch of IMA in Punjab, passed away on 29-10-1981. Born in 1898 Dr. Sharma qualified for the profession from Agra Medical School in 1923. After a brief period of service in the army, he joined the Punjab Medical Services in 1925. He retired from Ripon Hospital, Simla, in 1954 as Civil Assistant Surgeon. Later he settled down at Nangal township in Punjab and joined the Naya Nangal Branch of State Bank of India as medical officer. At Nangal he associated himself with many welfare activities. He was twice elected Vice-President of the notified area committee of Nangal township. Under his chairmanship a decision was taken to donate a handsome amount to Sri Guru Teg Bahadur College, Anandpur Sahib, Ropar district. He also served the people of the neighbouring villages of Himachal Pradesh. H is survived by two sons and two daughters.

DR. ATMA RAM SHARMA

DR. RATILAL N. MARU

Dr. Ratilal N. Maru

Dr. Ratilal N. Maru, a founder-member of the Porbandar Branch of IMA in Gujarat and popularly known as Dr. Rati Bhai, passed away on 13-1-1982 following a massive coronary attack. Dr. Maru qualified as an L.C.P.S. from Ahmedabad Medical School in 1930 and obtained the L.T.M. from Calcutta in 1933. He served the former Nawanagar State and later his home State, Porbandar, as a medical officer, before joining the Bhavsinhji Hospital of Porbandar State, from which he retired in 1964. Despite his heavy and varied work in the hospital he used to render free service to deserving persons. He was Treasurer of the Porbandar Branch for 25 years. He is survived by his only married daughter, his wife having predeceased him about a year ago.

“ DR. A.W. LEES et al.
WRITING IN THE 'LANCET,'[1] SAY:

We therefore compared ethambutol plus isoniazid (E+I) with (rifampicin plus isoniazid) in this (initial) phase of therapy. Ethambutol was chosen because although it is not the cheapest substitute for rifampicin, it still costs only about one third as much and in conventional dosage is almost free from side-effects...

... the results of the present investigation suggest that initial therapy with isoniazid, rifampicin, and ethambutol followed by continuation treatment with isoniazid and ethambutol is effective, highly acceptable to patients, and reasonably economical. ”

[1] A.W Lees et al Lancet, 1977, i, 1232-1233

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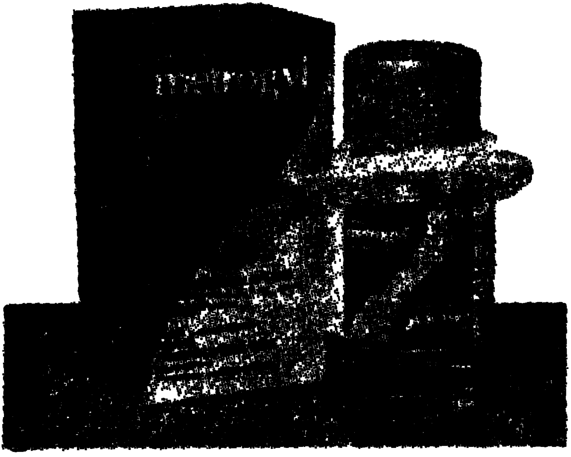
—A. T. Willis, British Medical Journal of Hospital Medicine, November 1978, p. 584



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C—Correspondence; *CN*—Case Note; *CT*—Current Topic; *Ed.*—Editorial; *NN*—Notes and News; *OP* Originals and Papers; *PS*—Practitioners' Series; *SA*—Special Article

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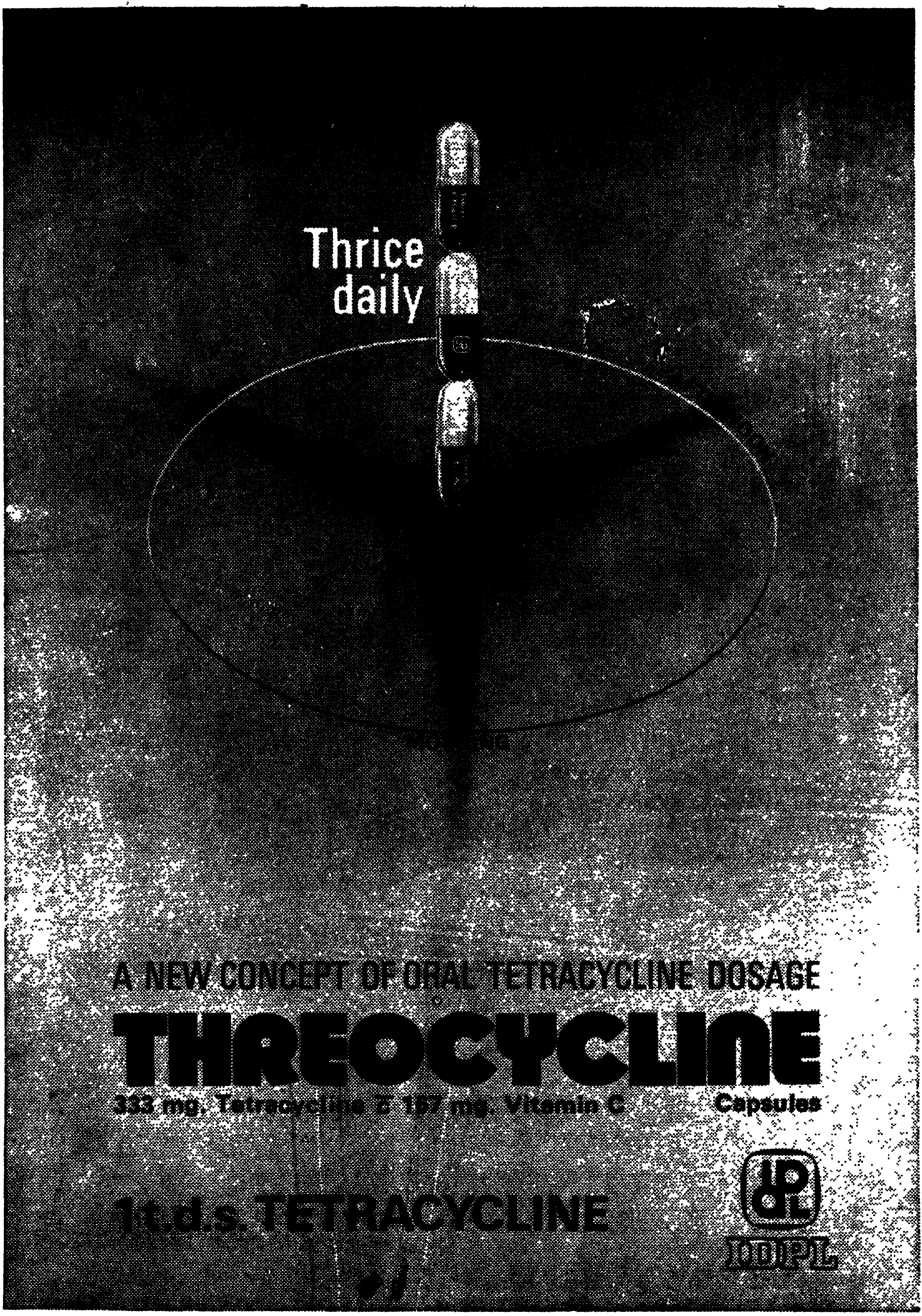

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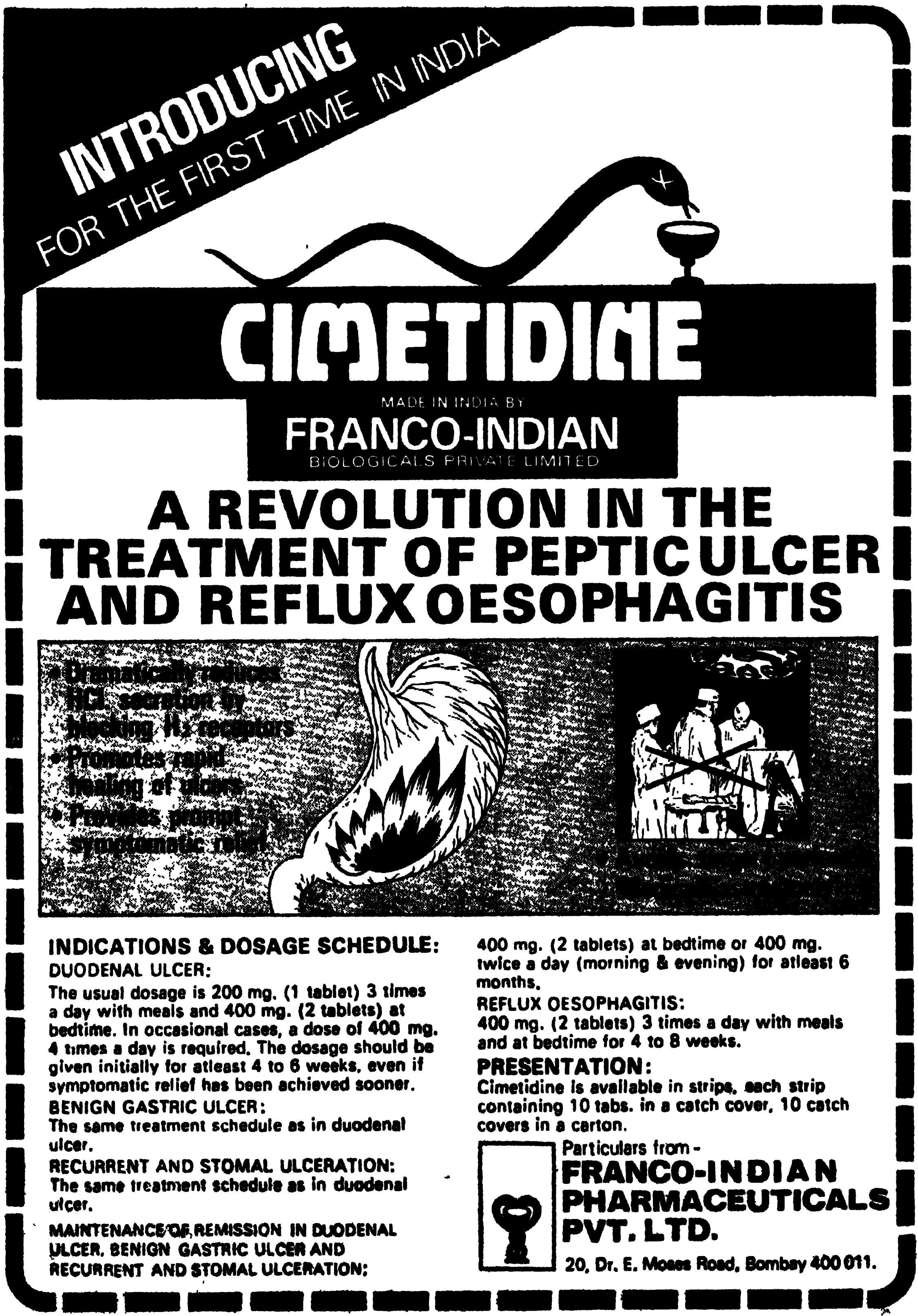
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